JUNE, 1959

Industrial FINISHING

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PAGE 124

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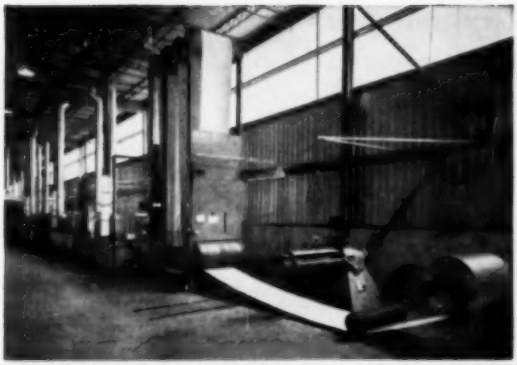
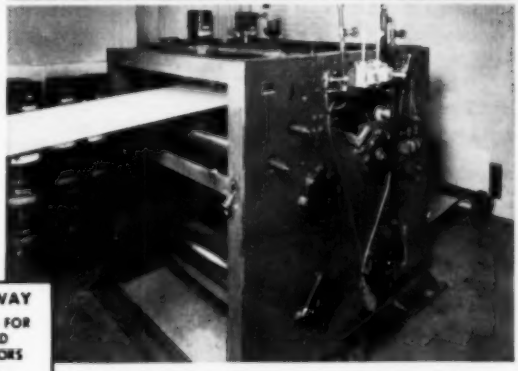
Prefinishing of Metal Strip by GASWAY

ORIGINATORS AND LEADERS IN THE FIELD





TOP — Complete 36" strip coating line installed at Reynolds Aluminum Supply Co. The line is completely automated — raw coil stock to coated and baked finish.
BOTTOM — Coater in the line at Reynolds evenly meters finish, saving paint and giving smooth baked coating.

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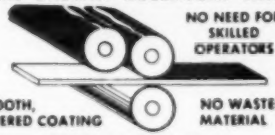

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Vol. XXXV, No. 8

BPA

A monthly magazine for company executives, production superintendents, process engineers, chemists, purchasing agents, paint shop and finishing department foremen of industrial plants where product surface cleaning and painting are major operations in the manufacture of parts and products of all kinds.

★

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West Coast Editor
CHAS. R. BROWN

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Accepted as Controlled Circulation Publication at Indianapolis, Indiana

35 **THIRTY-FIFTH YEAR OF PUBLICATION**

O. S. Aluminum Color Coatings. The Aluminum Co. of America announces the development of formulations for a complete line of colored aluminum paints and aluminum asphalt roof coatings.

This new development makes possible metallic protective finishes that will waterproof, insulate, decorate and preserve practically any type roof or metal surface.

Basis for the new formulations is a special new aluminum pigment. Although blended with high-cost colors and other expensive ingredients, the resulting product is competitive in price with other aluminum coatings and colored paints. Colors now ready for production are copper, gold, blue, green and brown.

* * *

Polyurethane Foam Cushioning. According to Harold Bostrom, President of Bostrom Corp. of Milwaukee, an industry-wide educational program and a much simpler generic trade name seem to be required for the new foam cushioning product.

"Despite the accelerating furniture industry acceptance of polyether type polyurethanes," Mr. Bostrom said, "the average shopper is confronted with a tongue-twisting scientific name and a product whose properties he does not know. Mere labelling of the new foam is not sufficient to convey the knowledge that furniture with this kind of cushioning is highly resistant to mold and is not adversely affected by water, cleaning compounds, or most commercial solvents. The facts about durability must be added to the easily demonstrated quality of comfort to convey the full story."

* * *

Mylar, A tough Plastic Film developed by DuPont research is an excellent electrical insulating material. It is transparent and is manufactured in thicknesses from ¼ mil to 10 mils.

Besides the electrical field, other uses include strengthening metallic yarns for use in everyday clothing and specialty garments, also in stationery supplies, a base for cartography and drafting materials, decorative surfacing, book jackets, signs and decals, and automotive trim.

Mylar can withstand boiling water and resists exposure to severe outside weather conditions.

* * *

Phenolic Resin Dock Paint. A coating based on Bakelite phenolic resin has provided excellent protection to the Grosse Pointe, Michigan municipal dock. After almost three years of service, the formulation has required little or no maintenance because of deterioration, according to the city council.

With phenolic based systems, periodic repaints of the pier have been reduced to one-third the number formerly required. As a correlative advantage, the costs involved for main-

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taining the phenolic formulation have been cut one-third too.

Located on Lake St. Clair, the dock is subject to ice, sleet and severe rainfall. In addition, the phenolic coating must resist sub-zero temperatures in winter and 90° heat in the summer. Coated with 150 gallons of the plastic formulation, the dock has withstood heavy traffic of boaters, fishermen and bathers without chipping or peeling.

* * *

Color Plastics for coding, prototypes and special effects is now economically possible. A brochure, How to Color Code Plastic Parts at Low Cost, published by Colorite Industrial Dyers, 244 W. 38th St., New York 18, N. Y. is free for the asking. It lists the various plastics, their trade designation and the process that can be applied to the material. The method of color coding when utilizing "family" molds with their inherent economies by using the process is also included.

* * *

A New Series of Epoxy Resins have been developed by Bakelite Co., for corrosion resistant coatings. Four products are now available for formulation in air dry or baking finishes for steel, aluminum, zinc, tin plate and wood.

Two resins will react with amines, polyamides and urea formaldehyde resins. Two others, though designed to esterify with vegetable oil acids, also undergo all of the usual epoxy reactions.

Technical Releases Nos. 15 & 16, Resins for Surface Coatings are available from Bakelite Co., 260 Madison Ave., New York 16, N. Y.

* * *

Dry compressed air. Do you require a large volume of dry compressed air in your plant? Air dryers are now designed with capacities up to 3000-cu-ft. per minute to handle compressor output up to 600-hp.

These dryers extract both water and micronic particles and dry the air to low dewpoint quality in volumes sufficient to protect all plant operations. Dewpoint and capacity graphs are available from Van Products Co., 5744 Swanville Rd., Erie, Pennsylvania.

* * *

Silicone Paint Resists Heat. Sicon is the name of the coating used on engine shrouds when USAF TM61 Martin Matadors are recalled for servicing and refinishing.

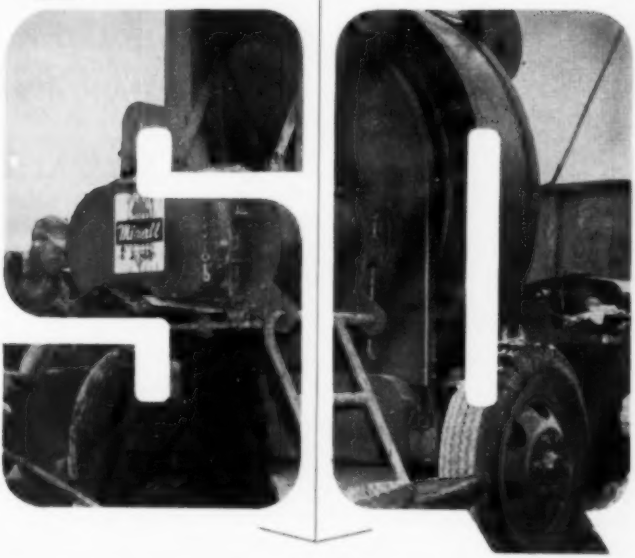
This coating has excellent heat resistance up to 1000° F. It is said to withstand this high heat without peeling, blistering or loss of film stability.

Sicon, in colors, can be used where a coating is required that will not chip, peel or powder when subjected to protracted periods in the 500° F. heat range, such as incinerators, grills, heating units, etc.—*Midland Industrial Finishes Co., Waukegan, Illinois.*

* * *

Colored stainless steel is now available for architectural, decorative, and other utilitarian uses as a result of a new coloring process developed for commercial use by Electro Metallurgical Co., Division of Union Carbide Corp. The Permyron process is unique in that parts can be severely formed after coloring without impairing the surface, and extremely large parts such as architectural panels can be processed. In addition, it is expected that this superior coloring will be produced at less cost than other coloring processes. The process also shows promise for the coloring of aluminum, plain carbon steels, and other metals, and will ultimately be available in a range of colors. At the present time, only black is being produced.

Tousey's



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Surface Treating and PAINTING STEEL DRUMS

By Melvin E. Brochocki
Plant Chemist*

GENERALLY speaking, steel drums really take a beating. They receive rough handling in storage, in shipment and even in the plant where their contents are used. In many cases drums are stored out of doors in all kinds of weather—from the hot sun in the south to snow and sleet in the north.

All of this requires the use of correct finishing materials and good surface treatment to produce excellent adhesion of the enamel—and what is of even greater importance, to protect the steel against corrosion in the event the enamel film is scratched or marred. Only a tightly adherent, complete phosphate coating, inside and outside the drum can accomplish this. The inside surface of the drum, when not coated, must resist corrosion, and when coated it must be properly prepared for special high bake lining materials.

*United States Steel Products Division, United States Steel Corporation.

The body shell is roll formed, welded, flanged and rolling hoops are expanded. Heads and bottoms are blanked and all forming operations are completed before any metal treating is done. All body shells, heads and bottoms are placed on wire carriers suspended vertically on an overhead monorail conveyor which carries them through a multiple stage unit for cleaning, descaling and phosphatizing. The surface treatment consists of alkaline washes, descaling, zinc phosphating and chromic phosphoric acid sealing rinse and water rinses.

This process removes all oil and grease, dirt and scale, and etches the surface to assure the greatest possible adhesion for coatings. A tight zinc phosphate coating is applied of sufficient thickness to give a rust inhibiting interior finish and also a highly improved rust inhibiting surface for extending enamel life. The appearance of a finished drum is ample evidence of proper surface preparation.

After leaving the cleaning line dry-off oven the course the shells will follow depends upon the end use of the drum and the customer's requirements. For example, let us follow the course of a drum which is to be used for shipping highly corrosive materials such as phosphoric acid. In this case the shell goes through the inside liner booth where a coat of vinyl primer is sprayed on the inside surface. The shells go through an oven for a preliminary bake prior to applying the polyvinyl chloride lining.

The first coat of polyvinyl chloride is sprayed on the primed surface and is then cured in the oven in accordance with suppliers specifications. The second coat of polyvinyl chloride is applied in a uniform continuous pore-free film; then the shells go into the oven for a final bake. By this system the dry film thickness of the liner is nominally 8 to 10 mils. The shells are carefully inspected to assure compliance with rigid standards before the heads and bottoms are seamed on.

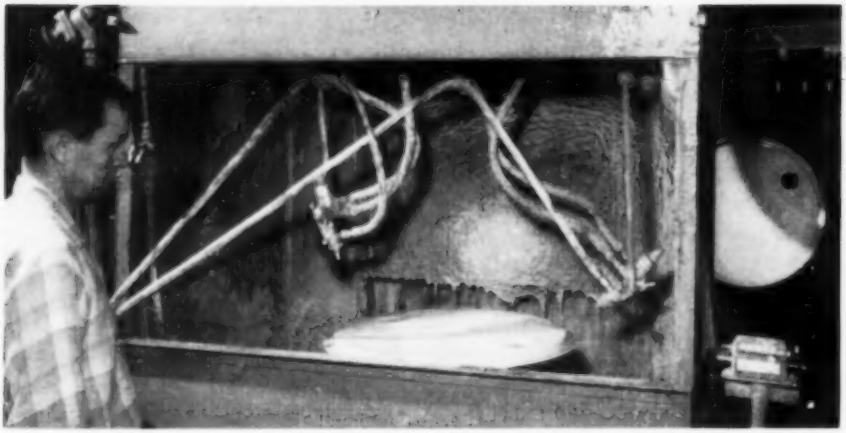
The heads and bottoms, which have had the same surface preparation as the shells, receive the same lining material as the shells; it is applied in a separate water wash spray booth. These coatings are cured in a separate oven at identical temperatures and baking cycles as the coatings on the shells on which they will be double seamed. The same close inspection is given heads and bottoms as is given the shells.

Drums Used for Food, Lacquers, Solvents, Chemicals and . . . .

Drums which are to be used as food containers are generally lined with an epoxy resin base material.

[*Continued on page 10*]

Shells at vertical position together with heads and bottoms enter the cleaning, descaling and phosphatizing equipment at right and leave the dry-off oven at left. This equipment assures correct surface preparation.



Heads and bottoms of drums are automatically coated with the same materials as the shell liners in this spray booth. These coatings are then baked at the same heat as shell liners.

This coating is sprayed on the inside of shells in a one or two coat application. It is applied as per customer requirements and baked to the supplier's curing specifications. The resulting dry film thickness may be varied from ½ to 1½ mils or more, dependent upon customer's requirements.

In addition to these illustrations many other lining formulations are used for coating the inside surface of drums, such as, phenolic and vinyl liners, pigmented and clear epoxy and phenolic combinations, clear alkyd resin base synthetics and ordinary lacquer—all depending upon customers' requirements and specifications. Pre-selection of interior lining materials, close control in mixing and spraying, constant close control of baking cycles through continuous temperature and speed control instruments—all are factors of great importance in production of high quality interior lined steel shipping containers.

Materials shipped in lined steel drums range from strong acids to food products and include such items as lard, shortening, syrups, vegetable coloring, preserves, lacquers and other fine finishes, special solvents and chemicals, where a small iron pick-up would ruin the product and therefore must have a continuous pore-free interior lining to protect them.

Exterior Enamel, in colors, is Baked for Outside Exposure

After application of interior linings the body shell and heads and bottoms are double seamed and then conveyed to a separate booth where the exterior will be coated with one, two or three colors. This exterior enamel is generally a high grade modified alkyd resin base enamel. The exterior finish is normally baked for 14 minutes at 280° F. Other types of drum enamels are used, based upon customers' requirements. [*Cont'd on page 12*]

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As a base for paint, the Turcoat low temp phosphating process provides a uniformly smooth coating of up to 200 mg/sq. ft. in two minutes at 95°F. **As a base for corrosion prevention,** it provides an 1100 mg/sq. ft. coating in just eight minutes at 95° F.

Turco has waited to announce low temperature phosphating until it was thoroughly perfected and proven, through exhaustive field testing, to be the very best. For this reason, you'll find that with this new process, just as with Turco's hundreds of other cleaning and chemical processes, you are assured of trouble-free operation, ease of control, and dedicated technical service . . . anytime, anywhere! Write today for the full story of Turcoat low temperature phosphating, along with Turco's phosphating reference chart. There's no cost, no obligation.

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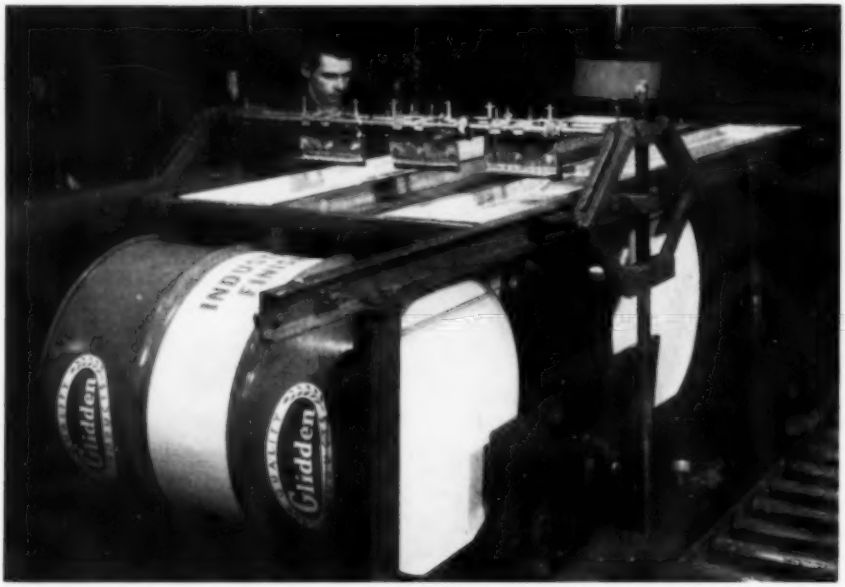

Trademarks, trade names and contents description are applied to drums in this machine. Drums enter from the right, are decorated, then upended and returned to the conveyor.

Exterior enamels used are all high grade finishes specially formulated to provide excellent weathering properties and also hardness and toughness to maintain their good appearance while in use. The zinc phosphate coating acts to provide better adhesion of organic finishes, to resist the spread of corrosion at points where the enamel may be damaged in handling and thus further extend the life of the exterior finish.

The entire process of metal preparation is similar to that used by the appliance and automobile manufacturers, in that all working of the metal is accomplished prior to the cleaning, descaling and phosphating. This produces a 100% surface preparation and greatly enhances the paint life and appearance.

Decorated Drums

When customers require drums decorated with trademarks, tradenames or other decorative work, the drums are automatically taken from the production line and pass through an automatic machine which can apply the required decoration to the full circumference of one or all three panels of the drum simultaneously. After receiving the decorations the drums are automatically ejected from the machine, inspected and returned to the production line.

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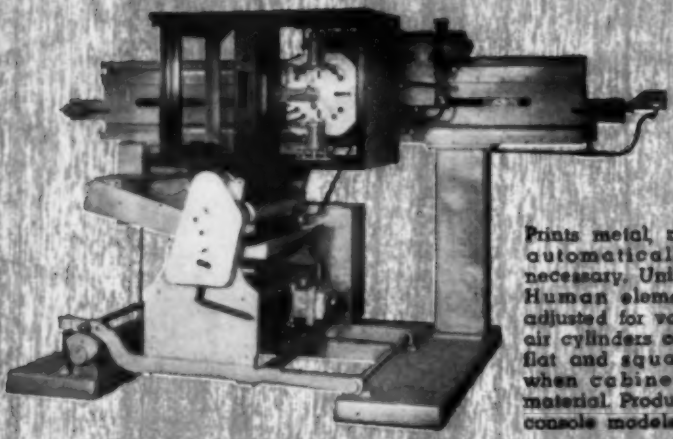

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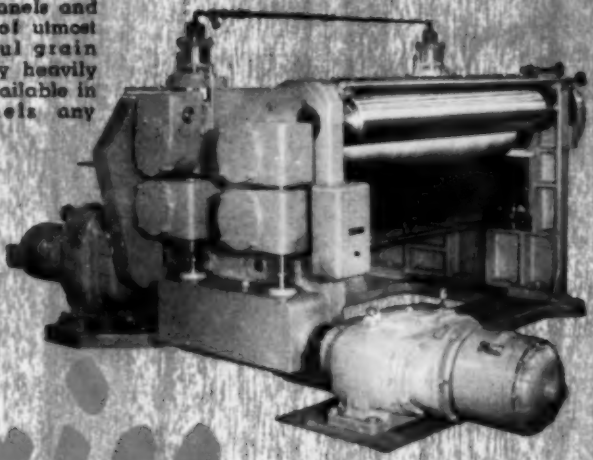
U. S. A.

Reverse Roll Coater for eliminating imperfections in hardboard panels and other sheet material, which is of utmost importance in securing beautiful grain effects. These machines are very heavily and accurately built and are available in two sizes for 36" and 48" panels any length and up to 2" thick.



Grain

REPRODUCING EQUIPMENT

This large, heavy duty machine has been especially designed for printing unusually beautiful grain effects on large panels. Panels are automatically fed through the machine so that perfect registration of design can be had. Machine carries two sizes of engraved cylinders: 10" diameter for straight grain and 20" diameter where design of wood is such that repeating is objectionable. Standard size machines will handle panels 36", 48" and 84" wide, up to 12' long and from the thinnest to 2" thick.

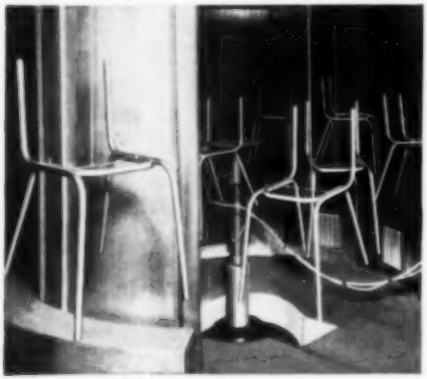
For more data, circle 158 on colored card.

RANSBURG *Electro-Spray...*

PROVIDES 50% PAINT SAVING

(over the former dip method) in the finishing of

KAY-MAR DINETTE FURNITURE



◀ A high quality, long-lasting finish is applied to tubular chair frames as they make a loop around the Ransburg No. 2 Process reciprocating disk in the finishing department at Kay-Mar Industries.

● Kay-Mar Industries, Cassopolis, Michigan, switched from the dip method to Ransburg Electrostatic Spray Painting because they wanted to improve the quality of the finish on their metal furniture line.

Now, with electrostatic spray painting, they get a heavier, more uniform application, which was not possible with former dip. With electrostatic, they are able to use metallic coatings with higher metal content. In their magazine advertising to the mobile home industry, they proudly say: "Finest finish in the industry at no additional cost to you!"

Electrostatic provides other advantages at Kay-Mar. They picked up some additional—and much needed—floor space when dip tanks were removed. Their insurance rates were reduced because of improved "housekeeping" conditions. Frequent color changes are made quickly and simply, and rejects—which used to run 1½%—are reduced to less than a quarter of one per cent.

No reason why you can't do it, too!

Let us test prove the advantages of automatic electrostatic spray painting on your products in our complete laboratories. No obligation. Call or write for our No. 2 Process brochure, which shows a variety of automatic painting installations on a wide variety of products. Or, if your production doesn't justify automatic painting, let us tell you about the new Ransburg No. 2 Process electrostatic hand gun, now widely used by both large and small manufacturers.

Call or write **RANSBURG Electro-Coating Corp.**

Box-23122, Indianapolis 23, Indiana

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Industrial FINISHING

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FINISHING

June, 1959, Issue

Reader Service Department

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INDUSTRIAL FINISHING Magazine for information about technical paint coating problems, methods and processes; and for sources of supply for organic finishes, equipment and supplies to be used in connection with surface preparation and conditioning, paint application, sanding, paint drying and baking, rubbing, polishing, etc.

Surfaces to be completely or partially coated for protection, decoration or for any other purpose, include components and articles made of metals, plastics, woods, and composition materials; also paper, leather, rubber and fabrics.

The services of many testing laboratories, finishing consultants and special technicians are often available.

These inquiries are promptly answered. As a result, new products, materials and sources of information are continuously being uncovered; valuable contacts are made and timely suggestions for future articles to be published are often developed.

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Many chair manufacturers are using Perfex Satin Finishes to secure that rubbed appearance and waxed feel – without the costly rubbing operation – and while Perfex Satin Finishes are ideally suited to chairs, *numerous other pieces of furniture are likewise candidates* for these labor-saving, time-saving finishes.

Perfex was the original "flat" to be made by a new and different process (without the use of stearates or flattening agents) and it is still the "flat" which comes nearest to producing an actual rubbed varnish appearance. It is the Perfect flat finish–quick set, quick dry, waterproof, liquor proof, good build, full smooth body, beautiful rubbed effect, smooth waxed feel. Available in a full range of sheens.

PERFECTION

If you manufacture chairs or other furniture and are interested in securing an excellent rubbed finish effect, without a costly rubbing operation, we invite your inquiry.

PAINT AND COLOR COMPANY

INDIANAPOLIS 2, INDIANA

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Dip Coating

with modern facilities is safe, clean, non-wasteful and can be completely automatic, even including the supplementary spraying of some areas to produce a specification finish of uniform dry-film thickness.

By P. C. Bardin, Associate Editor

METHODS of and equipment for dip coating have come a long way since articles were hand dipped in a small tank of paint. Much progress has been made since power lifts were devised to lower racks of items into a paint tank and lift them out; and since overhead conveyor lines were bent down and up again to carry suspended articles into the coating material and move them forward over a drain area.

In most of the early dipping operations little if any attention was given to the viscosity of the paint. If the flow-down of surplus paint drained off so slowly that it left runs, sags and fatty edges, a little more solvent was added to the tank. If the paint seemed to be too thin, then a little more unthinned paint was added. This juggling back and forth continued with only a lucky chance that the correct "balance" would finally be attained. Viscosity tests were not made; as a result, the correct working viscosity of the paint was seldom if ever established or maintained.

Former Troubles: Settling of Pigment; Air Bubbles

Paint in a dip tank was not agitated continuously; as a result, a settling of high solids material often occurred. For the most part this settling became a complete loss. Without a circulating system, paint in the dip tank could not be continuously filtered, and foreign

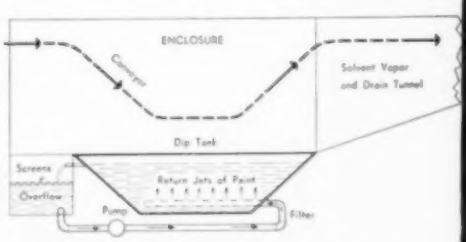


Diagram of enclosed conveyorized dip tank, where the paint is being continually circulated and filtered. A constantly controlled percentage of solvent vapor in the drain tunnel promotes safety and a clean drainage of excess paint from the dip-coated articles.

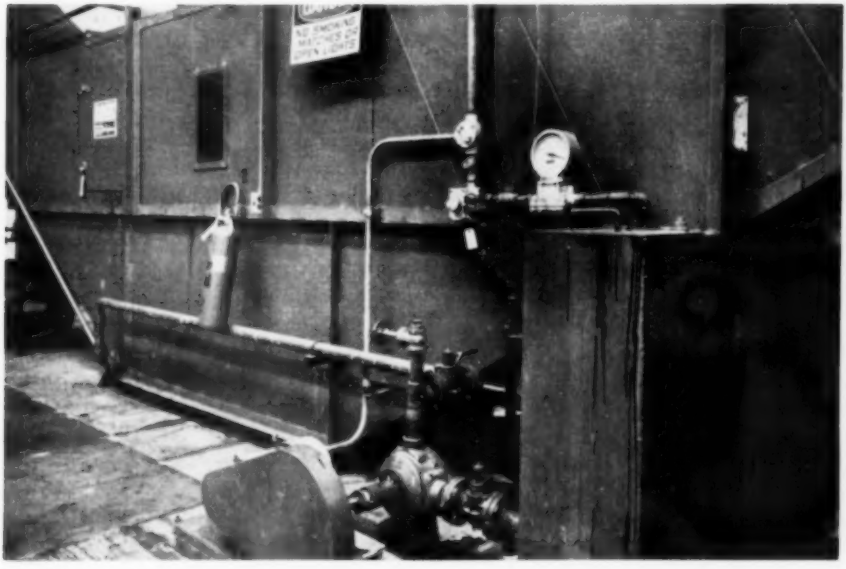
matter would often cling to the surface to show up as specks in the finish.

Air bubbles floating around on the surface of the paint were always a source of serious trouble. These bubbles seemed to float toward the outfeed end of the tank (the area from which dipped parts were withdrawn by conveyor). The bubbles floated in this direction due to the motion of the products passing through the paint. As dipped parts emerged from the paint, the bubbles would cling to their surfaces. Eventually the bubbles burst and you would have a marred finish.

Various methods were used to float air bubbles back to the infeed end of a conveyorized dip tank where they could do no damage to the finish. One of the early methods involved the use of a small power-driven paddle wheel; it was positioned to create a reverse current in the paint, to float the bubbles away from the outfeed end of the tank. This little paddle wheel cured the bubble trouble, but that is all it accomplished; it was added equipment to be given attention and maintenance.

The next step in preventing bubbles from clinging to dipped articles was to install a paint circulating system. Paint was pumped from the bottom of the dip tank and returned to the tank at the

A modern enclosed dip tank with auxiliary overflow tank at extreme right and a controlled solvent vapor drain enclosure at the extreme left. Movement of parts is from right to left. A safety glass window in the enclosure permits a view of work in process from the outside. The pump is in foreground. Notice that the paint return pipe enters tank at the bottom. The dip tank enclosure also has an access door at the left or outfeed end.



outfeed end just below the top level of paint in the tank. This created a reverse current which floated the bubbles away toward the infeed end of the tank. This arrangement not only removed the bubble trouble but it circulated the paint in the tank and afforded an opportunity for filtering the returning paint, all of which was definitely a step forward in the right direction.

Open Tanks; Solvent Vapor; Fire Hazard; Discomfort

Early dip tanks and drip pans were never enclosed. As a result, much of the room became heavily loaded with solvent vapor, which created a fire hazard and added much to the discomfort of those who worked in the area. Attempts were made to remove solvent vapor from the room, but with little success. Solvent vapor is heavier than air therefore the vapor sinks to floor level and builds up from that point. An exhaust fan located in one of the windows, or in an outside wall will merely create an illusion of removing solvent vapor. To really do the job an exhaust fan up as high as window level would have to change the air in the room about every three minutes. This would be out of the question, because such a draft would cause outside dust to be drawn into the room, and it would be difficult as well as expensive to try to heat the room during cold weather.

With present day facilities dip coating can be an economical and a well controlled method of paint application. Practically all of the previously mentioned adverse conditions can be corrected. Some of them have really been turned into savings; others have been used to create more comfortable working conditions and reduce maintenance while adding to the success of this method of painting.

Enclosed Tank and Drain Area; Paint Viscosity; Temperature

The accompanying diagram shows a modern dip tank installation with controlled vapor drain enclosures. In this particular setup, the product is dipped into a synthetic enamel which is kept at a viscosity of 40 seconds at 85° F. as measured in a No. 2 Zahn cup. Complete drainage of excess paint is accomplished in eight minutes in a controlled-solvent vapor atmosphere, plus seven minutes flash-off (air drying) in a dead air enclosure. The resulting dry film is two mils in thickness.

If the coating is to be of a specified dry-film thickness over all, then a supplemental spraying of close to 10% of the upper areas will be needed, since the flow-down of paint from the upper edges and sides of dip coated articles always leaves these areas with a slightly thinner coating than that along the lower edges and sides. In some plants this supplementary spraying is done before the articles are dipped; in others the slight added coating is applied after the dip-coating operation. It can be done manually or automatically; in the plant I have in mind it is done automatically, using fixed spray guns.

Guesswork has no place in modern dip coating. First, the correct working viscosity of the paint must be established. Then it must be

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to help manufacturers improve production operations

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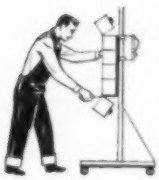
- Wood and wood products
- Research Laboratories

Profit through INFRARED HEAT



Do you perform baking operations? . . . drying? . . . dehydration? . . . preheating? . . . curing? For these and many other industrial heating jobs infrared processing is unsurpassed. Clean, space-saving, more efficient and most profitable, when properly used.

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Cooperating with leading infrared source manufacturers, Fostoria was the first to introduce radiant ovens and oven sections in utilizing infrared energy. Today, Fostoria is the only major oven manufacturer making equipment that incorporates all three* practical sources of radiant heat.

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In any application where a choice of methods is practicable, making tests in advance is the most rewarding way to decide on the process to be used. Proper selection, design, engineering, and installation to fit your special needs are essential for cost-saving efficiency. Our Research and Development Center is fully staffed and equipped to assist you.

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Fostoria production facilities are geared to deliver the industry's finest infrared ovens regardless of the type you need. Being the pioneer—well established, financially stable, most interested in infrared development—we believe we can offer radiant heating skills available nowhere else.

Profit by NATIONWIDE SERVICE

Fostoria Sales Engineers are located in all major industrial areas. You will find them competent and reliable. They will give you prompt, on-the-job attention that makes every Fostoria installation a satisfactory one . . . a profitable one.

Send for free book . . . "Radiant Heat-Applications Unlimited" will be sent without charge on request. If you include your application requirements, we will include recommendations in our reply. Write to Department **621.**

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kept that way at all times. The temperature of the paint must be kept uniform through the use of either heat exchangers or cooling facilities, because temperature definitely affects any paint's viscosity.

A circulating type of paint heater or heat exchanger is suggested as a safe way to heat the paint or other coating material. Consultation with the paint supplier is desirable if or when one plans to heat any paint or coating material above room temperature. With a closely controlled paint temperature, an automatic viscometer can be used to maintain a uniform viscosity; this, plus hourly tests with a viscosity cup, will give double insurance that the automatic equipment is functioning properly.

With the dip tank fully enclosed, and also the drain area, solvent fumes do not fill the room. This arrangement removes a fire hazard and promotes more comfortable working conditions. Solvent vapors trapped in the enclosure are put to a useful purpose. First, their presence promotes clean, fast and complete drainage of excess paint, leaving the product free of runs, sags or fatty edges. Second, the excess paint that drains from the surface of the product remains in a fluid state on the inclined floor of the drain area to flow back into the dip tank. This represents a saving in material. In the former open drip pans, this excess paint oxidized, generally on strips of paper and became waste.

While the enclosed dip tank and drain area provide the specific merits just enumerated, it is necessary that the solvent vapor in the enclosures be controlled to avoid a dangerous concentration of these vapors. This control of vapor concentration is accomplished through the use of correctly baffled ducts for both the exhaust and fresh air intakes. To maintain a correct balance of air in the enclosures, the volume of replacement air must equal the volume of air exhausted. The baffles prevent air currents or air turbulence in the enclosure. Otherwise any excessive air movement would adversely affect both proper drainage of excess paint off the product and the reclaiming of this paint.

Agitation, Filtering and Circulation of Paint

A new concept in circulation and agitation of the paint is illustrated in the modern dip tank shown in the accompanying photograph. An auxiliary or over-flow tank, separate from the dip tank, is located at the infeed end of the dip tank. Paint in the dip tank overflows into the auxiliary tank from which it is pumped back through cartridge type filters into the bottom of the dip tank. The return pipe inside the dip tank is fitted with small orifice nozzles which direct several jet streams of paint toward the top of the tank. Pumping the material back into the tank through cartridge type filters serves to remove all traces of foreign matter in the paint. The paint is being continually cleaned as it is circulated.

This system of paint circulation produces two very important end results. First, it adds useful agitation of the paint through the ver-

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Some signs of a good match: clean and efficient media; enough lubrication to assure a smooth finish; and faster cutting down, deburring or burnishing.

How to avoid a mismatch? That's where Oakite service can help you. Combine the Oakite man's experience with the tremendous variety of acid, solvent, and abrasive Oakite compounds available, and you're sure to be right.

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tical jet streams entering near the bottom of the tank; this, in turn, reduces or prevents any settling of high solids material. Second, the overflow feature accomplishes a dual purpose. It promotes a complete circulation of the paint, and it eliminates air-bubble trouble. The gentle movement of liquid paint, caused by the overflow, floats any bubbles present on the surface of the paint toward the infeed end of the tank and into the auxiliary tank.

Some articles are not adapted to dip coating because of their size, construction of some products are shape or construction. Some may be too large; then the shape and such as to prevent correct and complete drainage; and in some cases the formation of air pockets could prevent incomplete coverage. For such products that are suitable for this method of application, modern dip coating offers an economical,

Thompson Joins Masury

Travis J. Thompson was recently appointed Georgia sales representative for John W. Masury & Son, Inc. Mr. Thompson has had much paint sales experience and received a trophy from the Atlanta Sales Executive Club for outstanding performance.

Dust and Fume Catalog

Sixty different plant installations, from a wide variety of industries are illustrated and described in a three color, 52-page Dust & Fume Controls Systems Catalog published by The Kirk & Blum Manufacturing Co., Cincinnati 9, Ohio. Multi-page sections are devoted to systems for the ceramic, foundry, grain, metalworking, steel and woodworking industries.

Also described are systems for buffing, grinding, plating and heat treating. Wet, dry, electrical and centrifugal collection are also shown. One section is devoted entirely to ovens for industry. A copy will be sent on request.

Dow Promotes Doscher; Sellars Succeeds Him

Charles M. Doscher, who joined Dow in 1949 and is head of chemical sales for The Dow Chemical Company's New York office since 1956, has been promoted to the newly created position of sales manager of chemicals for the Dow international companies, Dow Chemical International Ltd., S.A. and Dow Chemical Inter-American Ltd.

Frank H. Sellars, who joined the company in 1943 and now in the Dow Atlanta office, has been advanced to succeed Doscher in New York. Sellars has headed chemical sales at Atlanta since 1956.

New Resin Aids Paint To Retain Color & Gloss

The Resins and Chemical Division of the Jones-Dabney Co. (Division of Devoe & Raynolds Co., Inc.) Louisville, Ky., announces development of a new acrylic co-polymer resin solution adaptable for a variety of uses in the protective coatings and plastics fields.

Produced under the trade name Poly-Tex 900, the thermo-setting resin solution provides industrial paint finishes with increased retention of initial gloss and increased resistance against solvents, chemicals or staining.

Paints That Glow In Dark

Phosphorescent paints are being produced by Ultra-Violet Products, Inc., San Gabriel, Calif. Non-radioactive, these paints are finding wide acceptance for good visibility in the dark for fire extinguishers, first aid kits and cabinets, light switches, exits, etc.

Manufactured in both baking and air dry formulations, they have good gloss retention and will reactivate themselves indefinitely.

Also available are two fluorescent inks in blue and green for stamping nonporous surfaces for invisible coding and marking of parts. The inks are invisible and transparent in most instances, but are intensely fluorescent under long wave ultraviolet or black light.

Your name was just mentioned at this SOLVENTS and CHEMICALS GROUP board meeting!

Customer reaction . . . **your** reaction to our sales, product development and marketing policies are carefully analyzed in dozens of meetings similar to the one above. As a service organization, we feel this painstaking attention to customer interests has paced the rapid expansion of the Solvents and Chemicals Group and plays a major role in current operations. If you are not presently buying from The Solvents and Chemicals Group, why not put this long range organizational planning to work for your firm. Enjoy the assurance of **correct,** high quality products delivered by specialized transportation equipment—**when you need them!** There are 19 "local" Solvents and Chemicals Group plants and warehouses to serve your needs for ——→

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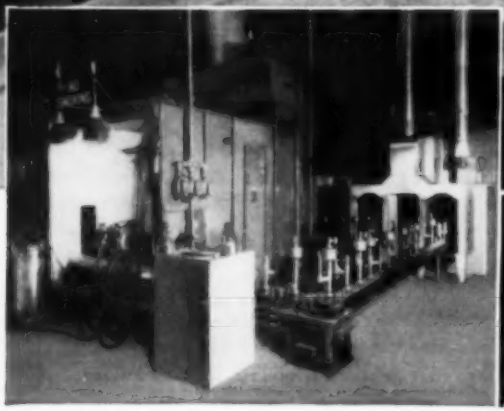

Above: Binks Model 21 automatic spray guns paint top, side and bottom of each motor. Motor rotates when in front of the guns.

Left: Overall view showing one of two similar painting operations.

At the Westinghouse Electric Corporation
Small Motor Division Plant, Upper Sandusky, Ohio...

Binks spraying machine paints motors...in seconds

"Our Upper Sandusky plant was designed for production of small motors with 5-year guarantees," reports Mr. H. A. DePree, chief of manufacturing planning for this Westinghouse plant. "To do this, we automated every process, including finishing, to achieve maximum quality control."

Automatic, 2-color finishing

With Westinghouse engineers, Binks developed a spraying system that insures uniform 3 mil finishing of motor parts and assemblies . . . even sprays 2 colors on command from coding devices.

Better finishing for your products

This Westinghouse installation is typical of thousands where Binks engineers and equipment have assisted in helping a manufacturer reduce finishing costs . . . boost quality. This Binks finishing knowledge and equipment team is available to you.

Free finishing analysis

Whether you use materials that flow like water or have the body of heavy coatings . . . Binks will show you the method of application best suited to your needs. The analysis will be made under production conditions, using your products and your finishing and coating materials. There is no obligation. Just call your Binks Branch Office or write direct.

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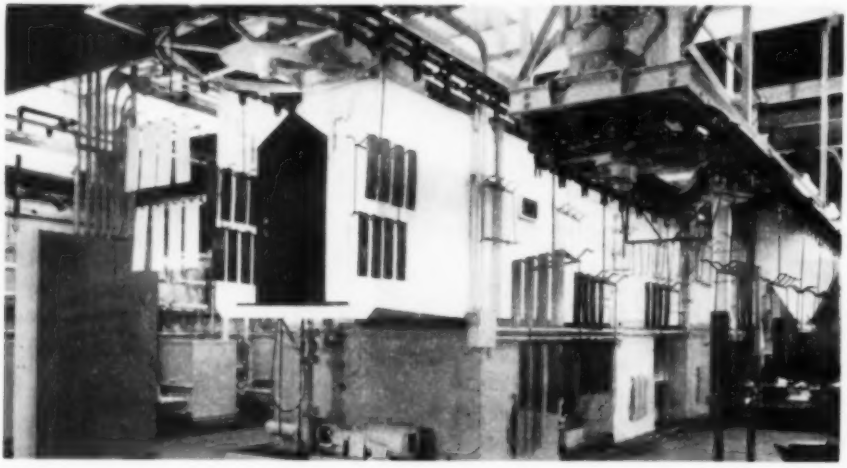
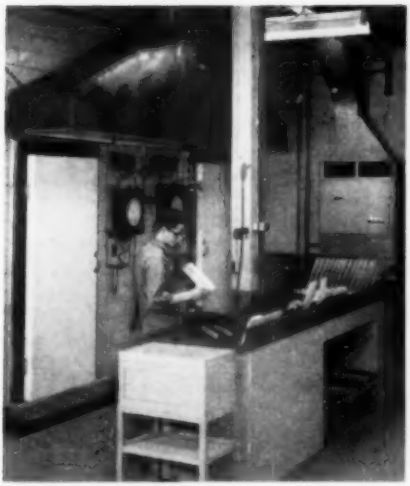
Test Panels for Paint Are Made of Treated Steel

MANUFACTURING paint test panels of plain and Bonderized steel is included in the many activities at the plant of Parker Rust Proof Co. in Detroit, Michigan. These test panels are used in the laboratories of paint companies and other concerns for making various tests on protective and decorative coatings. Such tests enable the laboratory technicians to predetermine the film characteristics of various coatings, for example adhesion, flexibility, hiding power, thickness of film and its resistance to excessive moisture, temperature changes, abrasion and many specific service conditions.

Parker, in the metal finishing field since 1914, has built up a vast fund of knowledge about the types of surfaces and the degree of finish best suited for testing paint finishes. The company's equipment, now in operation in the production of test panels, includes an automatic press for stamping and punching, an organic solvent scrubber, a two-stage flat polisher, a multi-stage automatic conveyorized Spra Bonderite phosphate coating unit, and a dry-off oven. These units are placed to form a modern, high speed, automated production line for the efficient and uniform preparation of test panels.

The conveyorized automatic Spra Bonderite unit in the company's panel production line.





In accelerated test rooms, the panels from each day's production are given salt spray and humidity tests.

As a result of an extensive research program in cooperation with A.S.T.M. and independent industrial laboratories, it was determined that flat polishing is the best method of eliminating surface variations in sheet metal. The phosphate coated paint test panels which the company supplies are of uniform quality; at regular intervals in each day's production a series of eight quality checks are made.

Careful and complete records are kept, so that every panel turned out has a case history behind it.

Test Panels Are Carefully Checked for Uniformity

As the panels emerge from the multi-head flat polisher, they are checked for flatness. Profilometer readings are taken to hold the surface finish at 15 to 18 micro-inches.

Panels, selected at random from the line, are checked for coating weight. Other panels are painted with a standard commercial finish and tested in salt spray and humidity. Painted panels are also given impact, conical mandrel and adhesion tests. In addition, the various cleaning, processing and rinse solutions are under the constant surveillance and care of company research personnel.

The company's test panel production equipment is desiged for flexibility and adaptability. Over 85 different Bonderites are in use by industry today, and any one of these can be supplied on test panels if requested. The automatic spray equipment can be controlled for time, temperature, conveyor speed and dry-off heat, as required by the

The clean test panels are carefully packaged to keep them in perfect condition.

phosphate coating which is being applied.

Experience in the field makes it possible for the company to recommend the type of coating and finish which will be most desirable for any use.

Untreated panels are available for control purposes and are cleaned and polished with the same precision and care as the treated panels. Quality control checks are made at frequent intervals to insure uniformity of surface finish and cleanliness.

Completed panels are wrapped and packaged in such a way that they reach the user in perfect condition.

Dip Coating Troubles; Cause and Remedy

Some of the difficulties experienced in dip-coating are similar to those encountered in other methods of finishing, while some are peculiar only to dipping. Likewise, the same can be said about the methods used to correct them. Some of the most common troubles and suggestions for correcting them are discussed below.

Sagging is often caused by the following: 1) use of too slow a solvent, or by over-reduction. 2) Drafts from open doors or windows. 3) Jerky operation of automatic dip equipment. When a slow solvent is suspected, the simplest cure is to slow down the conveyor or withdrawal stroke of the piston. If it is found necessary to add faster solvent, sufficient enamel should be added to insure adequate covering power. Screens can be used to shield emerging pieces from drafts, if it is not practical to close open doors. Eratic dipping equipment can be corrected by tightening and lubrication. Jerky conveyors sometimes can be improved by dummy weights on either the entering or emerging side to keep them in balance.

Lack of flow is caused by inadequate reduction or by use of too fast a solvent. Here too, the first thought is to slow down the withdrawal. It may be that the temperature is too low in the finishing room, a common fault on cool mornings. In such a case, hasty correction with solvents might only pile up trouble in the afternoon when the room and materials warm. If the fault must be cured with solvents, their addition should be kept to a minimum—especially if using sharp solvents which bring down viscosity sharply.

Poor drying can be caused by too heavy a coating, which itself can be due to not enough reduction, too fast withdrawal, or a fast solvent which does not permit adequate flow-off. On the other hand, a very slow tail in the solvent or enamel can cause the same condition. Though usually the last to be blamed, one of the principle reasons for poor drying is an unclean surface.

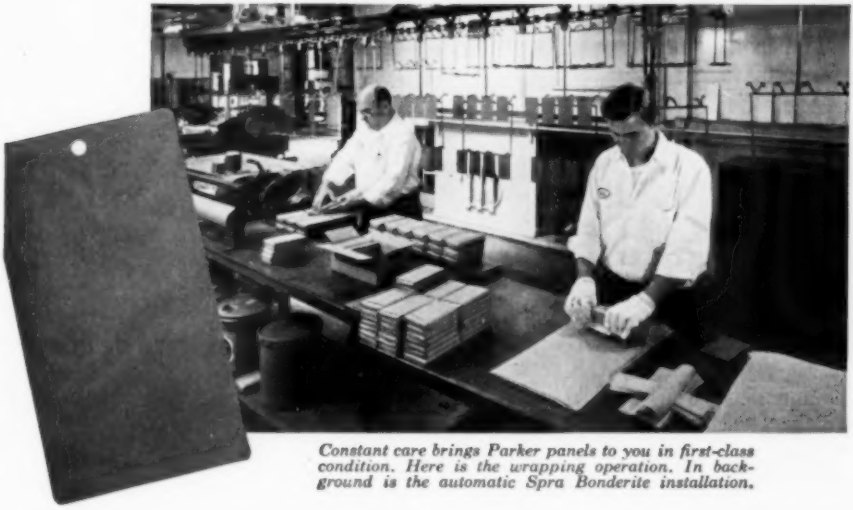
Lack of hiding: The coating material may have been poorly stirred in which case the thinner portion on the surface will thin the coat. Also, reduction with too slow a solvent or over-reduction will cause excessive flow, contributing to a thin coat. Sometimes this can be corrected by speeding up the withdrawal to the point where a secondary flow will add to coverage.

Brittle coats are usually caused by an improperly formulated enamel or by over-baking, especially baking at too high a temperature. While a very slow tail in the solvent might delay embrittlement to some degree, the attainment of a tougher, more flexible film originates in the paint laboratory.

—H. G. Penner.

Eliminate Variables From Your Test Program

BUY PARKER PAINT TEST PANELS!



Constant care brings Parker panels to you in first-class condition. Here is the wrapping operation. In background is the automatic Spra Bonderite installation.

Automatic production, from press through flat polishing and processing, plus eight quality control checks keep Parker panels dependably uniform. Reproducibility of test results is assured day in, day out with Parker panels.

Dependable Uniformity

Only Parker with its years of experience in metal surface preservation has made the necessary capital investment for automated equipment and set up control systems to guarantee panel uniformity with resultant dependable test results.

Industry confidence is attested to by the more than 700,000 Parker panels bought each year.

So exacting are Parker quality controls that there is a recorded "case history" behind every Parker panel.

Variety of Panels Available

Both phosphate coated and bare steel panels are available. Untreated panels are carefully polished and cleaned while treated panels can be furnished with any of the many Bonderites in use today.

One side of all steel panels is flat polished and marked so that either the polished side or the unpolished side can be readily identified even after painting. This positive identification permits consistent use of either side as desired.

For reliable test results, you need Parker panels. Write today for bulletin and price list.

Since 1914—leader in the field

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BONDERITE corrosion resistant paint base | BONDERITE and BONDERLUBE aids in cold forming of metals | PARCO COMPOUND rust resistant | PARCO LUBRITE wear resistant for friction surfaces | TROPICAL heavy duty maintenance paints since 1883

*Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.

For more data, circle 165 on colored card.

Attractive Finishes Help Sales

By C. Raymond Syer, Plant Chemist
U. S. Steel Products*

Progress in metal finishes has been rapid in the past several years. An attractive finish is essential to meet competition.

MANUFACTURERS of metal products are all in a competitive market and are continuously seeking and adopting improved materials and methods of application. They appreciate the importance of the finish in promoting sales, as well as in assuring customer satisfaction. The proof of this attitude is readily apparent to all of us . . . .

Regardless of how much care a manufacturer uses in the selection and processing of metals, with most products it is the finish alone that must meet the critical inspection of the buyer. A product may embody a reasonable degree of mechanical perfection and performance, but it is often the manner in which the finish stands up in daily use that determines the satisfaction derived by the customer.

Synthetic Enamels; Hard Flexible Films; Good Adhesion

About the year 1930, synthetic enamels were replacing the conventional oil type of baking enamel. These synthetic enamels were a great improvement over oil enamels inasmuch as they were characterized by extreme hardness, flexibility and adhesion to metal in a one-coat application. These materials produced a harder, tougher film on a shortened baking schedule, running in most cases about one hour at 225° F. They also retained their toughness and durability over an indefinite period of time, which was not true of most oil enamels.

When the alkyd-type enamel, made by chemically combining phthalic anhydride, glycerin and fatty acid, was marketed in about 1930, the luster retention and durability of the nitrocellulose-type finish was surpassed. This alkyd-type finish had an additional advantage in that the solids at spraying viscosity were higher than in lacquer, and one coat of alkyd enamel had the same "build" as two coats of lacquer.

Later on, the introduction of urea-formaldehyde resin and the

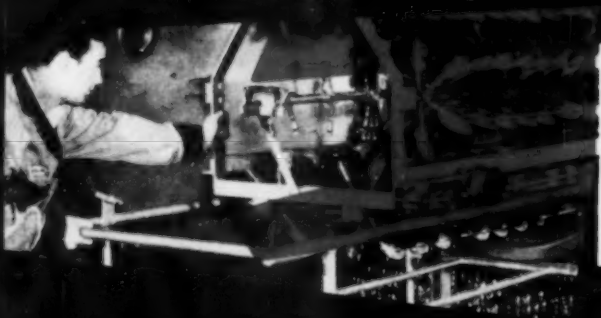
*Division of U. S. Steel Corporation, Camden, N. J., plant.

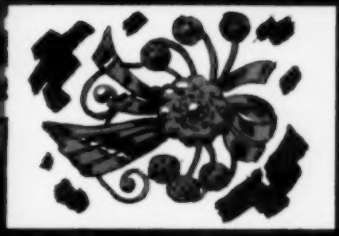
For more data, circle 166 on colored card.

Brilliant

NEW LOOK

FOR YOUR PRODUCT





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The answer to perfect undercoating or durable topcoating on metal, plastic, cloth, glass or paper. Platers have tried and proven the efficiency and economy of UNI-VAC finishes. Spray it, dip it, bake it . . . for base coating or topcoating . . . you're assured of good flexibility plus complete retention of its maximum hardness and toughness . . . in addition to UNI-VAC's good compatibility to colored dyes. Other features are: adhesion, high-build, resistance to abrasion, moisture . . . and considering its versatility, UNI-VAC is competitively low priced. Send for liberal free sample today.

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One coat does the job of two with Lowe Feuzon

Here's another example of what can happen when one of Lowe Brothers finishing engineers understands your problem. Check this engineer's report:

"The paint department foreman said that it was necessary to apply 2 or 3 coats for good coverage — especially when the metal had dark spots. He tried an order of Feuzon Gray Metallic and found it covered beautifully with one coat. When he has used up the competitive material in stock, he'll order our Lowe Feuzon."

Lowe Brothers finishing engineers are trained to find ways

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HIGH GLOSS BAKE ENAMELS

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Gold • Brass • Copper • Bronze • Aluminum

LOOKS LIKE
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One Spray • One Bake
Eliminates Clear Top Coats
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Available in all bronze powder colors

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use of this resin with alkyd enamels made it possible to shorten the baking time. Many changes and the addition of new resins have been adopted since, which definitely means that the paint industry has taken advantage of many opportunities for progress.

The highly specialized industrial activities of the country require trained people who have the "know-how" and technical background to supervise the blending of solvents, choose the correct viscosity at which materials should be applied, select and direct the best methods of application, baking and time schedules. No longer do we just look at a film and think of it in terms of oil length or pounds of resin per gallon of oil. We are interested in film properties, such as elasticity, flexibility, adhesion and durability.

We are also very much interested in lining materials for metal containers—whether they are formulated and properly applied to produce the desired chemical resistance, impact characteristics, color stability, durability, etc. From these properties we determine the correct chemical combination to use.

When Failures Occur, Find Causes; Learn More Facts

Let's look at an unsatisfactory paint job, where we know that the work was done with great care and skill, yet there are cracks, discoloration, stickiness or . . . .

You can hardly count all of the possible causes for unsatisfactory performance. You can perhaps expect a few failures, but it is practicable to reduce their number. A lot can be learned from failures. But to do that, it is necessary to find out their causes. This may be difficult when the fault is due to several reasons. In many cases a simple fault can be due to a number of causes. In other cases several defects occur at the same time, so that a correct solutoin of the trouble is difficult.

In oven baking an enamel, accurate heat control and an ample supply of fresh air at the proper temperature are essential. Since a part of the curing process of a finish is accomplished by oxidation, the admision of some fresh air in the oven is more important than is generally realized. The maximum hardness of the finish cannot be obtained, even by increasing the oven temperature, unless there is ample oxygen present to permit complete oxidation of the film.

Coatings That Will Withstand Forming

When coating flat sheet metal, which is to be stamped and formed, it is important that metals of suitable thickness (gauge) be used; otherwise the metal surface itself may crack on deep drawing.

Up to some years ago manufacturers did not produce varnishes and enemals the films of which could slide smoothly along the stamping dies. The dies therefore had to be greased with suitable lubricants in order to give them a longer life and to avoid damaging the finish.

Oleoresinous stamping enamels can soften, if greased. Modern coatings, now generally available, remove the need for lubrication, since they contain a wax that acts

as a lubricant. A more thorough baking may make the coating less susceptible to softening.

Cracking or a peeling off of the film can occur if the sheets are too cold when they are stamped or formed. This may happen to coatings which normally are elastic or flexible and which have not been overbaked.

Damage to the film at the edges or corners in stamping, may have occurred for one of the following reasons—that is if the coating is not too short in oil length, or is otherwise not suitable.

1) Too short drying or an excessive baking heat.

2) Application of a film that is too thick.

Compressed Air for Spraying; Cost of Finishing

An air compressor should not suck air in directly from the outside. The air chamber and the pipe lines, at least, should be located in heated rooms—if possible, near heating pipes or radiators. Cold compressed air should be pre-heated in some suitable manner—for instance, by an electric heater. The standard temperature of the spraying air should be maintained at about 70° to 75° F.

Users of industrial finishes learned long ago to consider finishing costs on the basis of cost per unit area coated. This basis for consideration is the only practical one, since industrial finishes are sold to the ultimate consumer applied to various products, and not by the liquid gallon.

Many manufacturers of metal products have learned to practice every available economy in an effort to operate at a profit. Rapid development in the field of industrial finishes—equipment and new methods of application during the last ten years—offer alert manufacturers additional opportunities to improve their products or to reduce their costs, or both, in the finishing department.

Carborundum Offers Chart On Wheels, Stones & Compounds

A handy colored wall chart on Industrial Specialties by Carborundum lists specifications in quick reference form on (1) die barbering wheels, (2) sticks, stones and rubs, (3) finishing compounds.

Pictures of products supplement the mathematical data. Available free from The Carborundum Co., Nigara Falls, New York.

For more data, circle 226 on colored card.

Binks Appoints Sales and Field Representatives

Several sales appointments covering a major portion of the country have been made by Binks Manufacturing Co., Chicago, Ill., manufacturers of spray painting equipment.

New sales representative in the Cleveland area is Mr. Robert Hamlin, and in Columbus, Ohio, region Mr. J. Coughlin. Mr. Robert E. Moser is a new sales representative in the Virginia territory.

In the San Francisco branch, Mr. Ed. Cogin is a new field representative.

Mr. Dan E. Power, Jr., and Mr. William B. Crawford will represent the company as direct field representatives in the Atlanta branch.

The New England territory will be served by Mr. A. Glines and Mr. A. McMillan.

Replaces many bronze powders on plastics or metals . . .

Bee Bronzeless Golds can cut your paint costs 50% and more

Interesting? There's more.

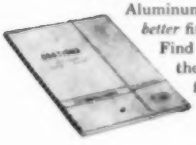
Bee Bronzeless Golds come to you *already mixed*, cost *less* at the gun, yet give two to three times the mileage of bronze powders you're used to. When applied, Bee Bronzeless Golds are non-tarnishing, give a harder finish (3H) than conventional bronzes, and are not at all "touchy" to handle with your spray equipment.

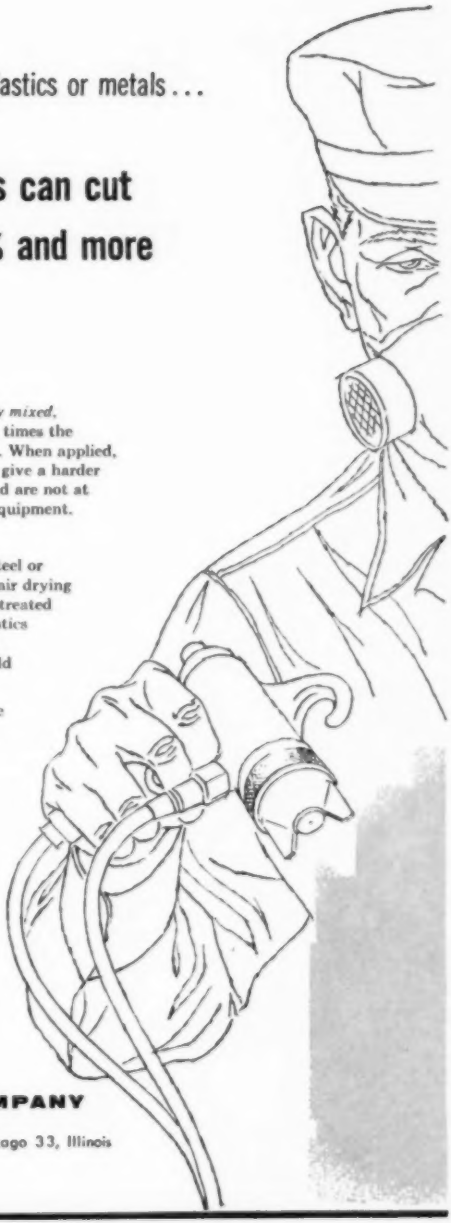
All this for a saving of 50%!

Bee Bronzeless Golds adhere to treated steel or aluminum and thermoplastics by merely air drying and without a primer. They adhere to untreated steel or aluminum and thermosetting plastics by first applying Primer EJ-2311 and air drying or, by applying the Bronzeless Gold directly, followed by baking.

There are limitations, of course. Brilliance will not quite come up to that of coarser bronze powders, though they duplicate fine lining bronzes.

Bee Bronzeless Golds—in Yellow Brass, Yellow Gold, Medium Gold, Rose Gold, Rich Copper or Aluminum can give you a *better* finish for less cost. Find out more about them, now. Write for bulletin B69.





BEE CHEMICAL COMPANY
LOGO DIVISION
12933 South Stony Island Avenue • Chicago 33, Illinois
Phone: MItchell 6-0400

For more data, circle 169 on colored card.

Acrylic-Butyrate Lacquer For Wood Furniture

By G. A. Lenaeus, V.P. Research & Production
Southern Varnish Corporation*

THE MODERN trend in furniture, with the introduction of lighter colors such as limed oak, seafoam mahogany and the bleached colors on various woods, has brought about a need for a lacquer that has dependable color retention. The yellowing and staining of early wood lacquers did not cause too much concern because they were applied over dark brown mahogany and walnut colors, which minimized the effect of any color changes in the clear lacquers.

Modifications in the basic nitrocellulose lacquer formulation were made to cope with the more stringent requirements when bleached and blond finished furniture came into style. These changes were in the resin portion of the lacquer, with cocoanut oil alkyds replacing rosin-based resins. The improved lacquers became known as water white lacquers. They were well suited for use on all but the lightest colors. However, even these lacquers yellowed too much on exposure to light—and with the passage of time—for satisfactory use on the palest of the modern colors such as pastel colors and white.

This problem has been recognized for some time by wood finishing firms, furniture manufacturers,

*Roanoke, Virginia.

Lenoir House. Photograph courtesy of Broyhill Furniture Factories, Lenoir, North Carolina.

and furniture dealers, all of whom have experienced various phases of the problem. If pale colored furniture discolors too much on storage, in the carton, or on the show room floor, this discoloration results in mismatching and down-grading of the furniture.

All new colors proposed for production should be tested on the desired woods by the wood finish supplier, before being released for large scale use. These tests—tests for resistance to change from exposure to sunlight, darkness and the passage of time—have eliminated many otherwise desirable combinations of woods and colors, and have made it imperative to stay within the darker range of finishes.

Our Customer Demanded a Better Water White Lacquer

A white color was desired by one of our customers in North Carolina, but they were reluctant to go into this color without complete assurance that serious color problems would not develop later. The manager of their quality control laboratory tested several top grade lacquers and synthetics that were already in use at their various plants, and found that none of these materials would be light stable enough for the white color. Then he asked us, as a top-coat supplier, to develop a lacquer finish that would show no discoloration at all under laboratory tests. He insisted on this before he would recommend this color.

Fortunately we were just completing a two year research program with the aim of developing an improved water white lacquer. This research program began with a survey of the potential usable resins.

Early in the study we decided to concentrate on acrylic resins as the primary basic ingredients, because of their outstanding resistance to deterioration from the elements. A pure acrylic lacquer would have been ideal, except that the curing or drying temperatures and schedules available in furniture plants are not sufficient to provide satisfactory drying of the pure acrylics.

Cellulose acetate butyrate was selected as a possible complementary film former because of its hardness, extremely good non-yellowing characteristics, and because it is compatible with many acrylics. The physical properties of the two resins indicated they would complement each other.

A Combination of Acrylic and Butyrate Resins Looked Good

As laboratory work progressed the combination of acrylic and butyrate resins was confirmed to be quite appropriate, as we had anticipated. Extremely good non-yellowing performance, upon exposure to light, was observed in lacquers made from these basic resins. The acrylic-butyrate lacquer coatings came through the lab. tests essentially unchanged. They also showed excellent resistance to staining from rubber based articles, such as lamp bases or typewriter base pads. In our most severe laboratory tests we have experienced only a very small staining effect from these materials. [*To page 44*]

[*Continued from page 43*]

Pilot Testing the Lacquer; Modifications Made in Formulas

Having overcome the discoloration effects of sunlight and rubber-based articles, the acrylic-butyrate lacquer formulation was then pilot tested in certain furniture plants. Modifications were made until the lacquer was rated satisfactory for application and rubbing properties on large scale production lines, and for resistance to printing, cold cracking and marring.

Another test, made to verify the suitability of this new lacquer, was to test it over vinyl films such as synthetic leathers used on tables. Here again the acrylic-butyrate combination proved to be satisfactory; it resisted softening from migration of the vinyl plasticizers.

More Severe Tests Made to Prove Lacquer's Resistance

A further, even more severe test was made when the acrylic-butyrate lacquer was applied to wood panels and then placed in direct contact with vinyl plastic films which were backed up with polyurethane foam. This combination, which is often encountered in shipments of knocked down prefinished furniture in the same carton with seat cushions fabricated as stated above, causes some lacquers to become as sticky as fly paper. This condition is caused by a combination of effects from amine catalysts used in the foam and plasticizers used in the vinyl. The acrylic-butyrate lacquer was found to provide satisfactory resistance to softening under these conditions. This resistance is something remarkable when one realizes that even urea-alkyd catalyst-cured combinations softened when placed in contact with the pad of polyurethane foam and vinyl plastic.

The proof of any lacquer is in the using, and the acrylic-butyrate lacquer has passed this hurdle. The furniture factories of a large company severely tested this lacquer in their own laboratories and then adopted it for use as the clear top coat lacquer on their new bone white color. The exceptional properties of the improved lacquer were considered essential to the success of the color. It has been used satisfactorily on several cuttings of these white suites.

Another furniture company—one in Virginia—is preparing to go into production with a pure white suite and has adopted this acrylic-butyrate lacquer as the topcoat lacquer for both white and color coats.

This improved lacquer, formulated from raw materials of uniform quality, is another example of what can be accomplished through proper utilization of the ever increasing array of excellent raw materials now available to finish formulators. This whole project presents a good example of the way in which products can be upgraded by cooperation and exchange of information between customers and suppliers.

You cannot think to the best advantage about a problem unless you have all the pertinent facts. Get thoroughly familiar with all phases of the problem. Facts often suggest solutions.

For more data, circle 170 on colored card. ⟶

MAR-PROOF LACQUER

SCHAEFER'S Mar-Proof Lacquer is a performance-proven finish that cannot be easily marred or scratched.

It's tough—tougher than the ordinary lacquers; meets the most critical requirements of current production.

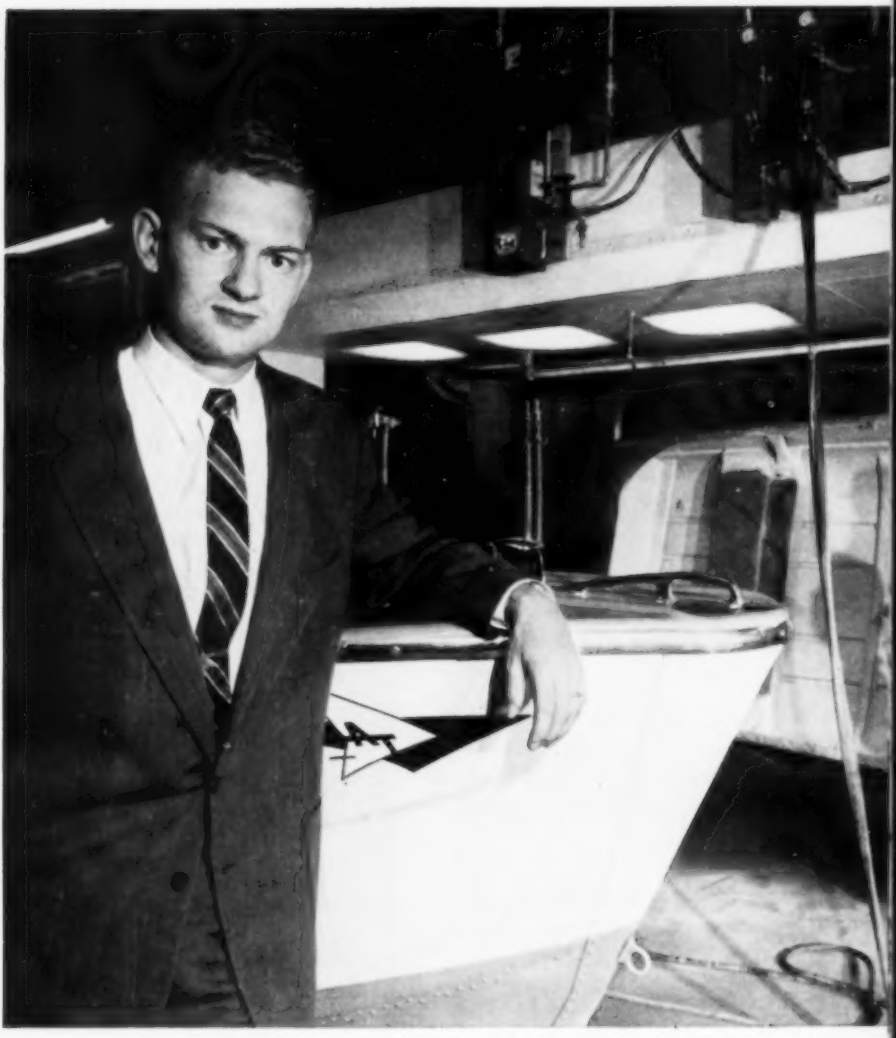
Made in either clear gloss rubbing or satin finish, it produces a splendid transparent coating of full depth on maple, walnut, gum, mahogany and other cabinet woods.

Economical; gives plenty of coverage and dries quickly. Our Mar-Proof Lacquer Sealer is recommended with it for a first-coater.

Working samples furnished without obligation. Write for them!

THE SCHAEFER VARNISH COMPANY, INC.
Louisville, Kentucky

"We took the guesswork out



Chief Engineer Venner shown with modern, well-lighted DeVilbiss water-wash Spray Booth in background. Note paint heater affixed to top of booth.

# of quality control—thanks to DeVilbiss Paint Heaters"

"The function of paint heaters is critical in our operation," states Allen Venner, Chief Engineer, Southwest Manufacturing Co., Little Rock, Ark., makers of the famed Arkansas Traveler aluminum pleasure boats.

"Most of our craft are produced during the cool, rainy winter months. Indoor temperature and humidity are so variable that continually adjusting pressures and paint viscosity was a time-consuming 'guessing' game.

"Now, with DeVilbiss Paint Heaters, we have complete control over the quality of our boat finishes. Paint leaves the gun at approximately 140° F., regardless of room temperatures; the finish lays on evenly with a fine film build and superior gloss.

Painting costs reduced 30%

"This complete DeVilbiss installation brought us substantial cost reductions: By spraying at lower pressures, air compressor power costs went down 20%. We cut thinner and paint consumption 20%. There was a 50% reduction in booth maintenance. Overall savings amounted to 30%."

Call your DeVilbiss representative today and get the facts, first-hand, on the industry's most complete and up-to-date line of spray painting equipment.

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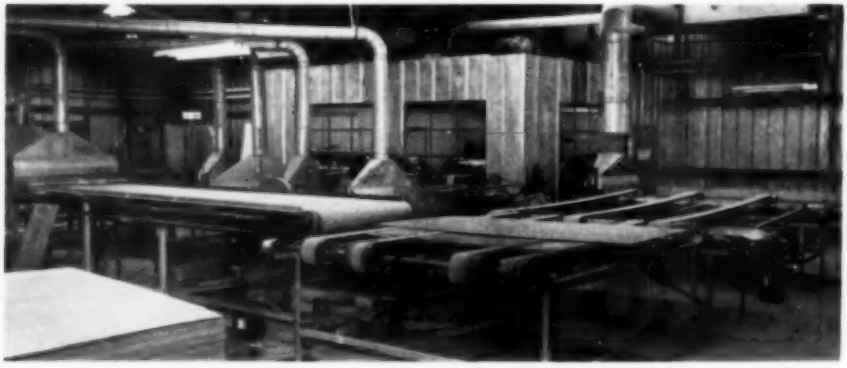
Graining and Finishing Plywood Wall Panels

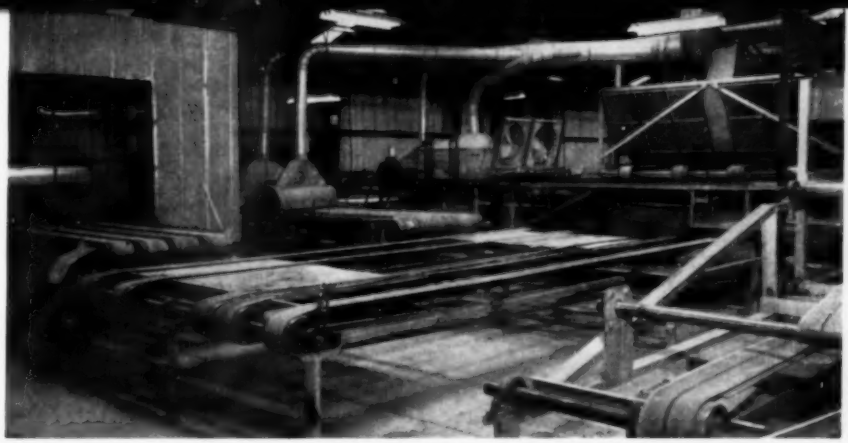
By P. C. Bardin

PREFINISHED plywood wall paneling can be divided into two general classifications—panels faced with genuine natural woods and panels on which are printed a true reproduction of natural wood graining. Economic pressures and foreign competition have increased demands for the latter. From the standpoint of appearance and wearability there is little if any difference between the genuine and the printed wood graining because, in the finishing operation, both are covered with durable, clear protective coatings. From the layman's viewpoint, there is no difference. Wood connoisseurs can only detect the difference through repeated grain design perfection in printed panels, as compared with slight differences and imperfections of the grain structure of genuine natural wood panels.

Prefinished panels are produced in ¼-in. thickness and in 4x8-ft., 4x10-ft. and 4x12-ft. sizes. They are offered in plain faces, with V-grooved edges so that workmen who install them will not be obliged to use strips or battens to cover the joints between panels. They are also made with V-grooved faces and edges to give the effect of random width boards. Ply panels to be grained can be faced with any

Here you see the entrance to the filler-stain-sealing operation on prefinished panels, and the entrance to the graining room. Photograph courtesy of Georgia-Pacific Corporation.





The exit to the graining room and also the exit from the filling operation of prefinished panels. Ovens and conveyors are to the right. Photograph courtesy of Georgia-Pacific Corp.

suitable domestic or foreign wood veneer, just so it doesn't have too much tendency for the surface grain to raise during processing.

Naturally, these panels must be made smooth and level on both sides, and of uniform thickness, before any finishing begins.

Surfaces Prepared by Sanding; Reverse Roller Coating

First the panels should be run through a multiple drum sander or an automatic belt sander to level their face surfaces as much as possible. This sanding will remove any hills and hollows that may be present. However, for a really high quality job, the surface should be filled by reverse roller coating.

The reverse roller coater rolls a special filler on the surface, and before the panel leaves the machine, all excess filler is removed by the action of a reverse pressure roller; this leaves only the hollows and depressions filled. The result is a perfectly smooth level surface. Such an exceedingly small amount of filler remains on the surface that the required drying time is negligible. In fact, panels leaving the reverse roller coater can be conveyed immediately to a regular roller coating machine to receive the ground color coat.

How to Apply and Dry Ground Color Coat

Automatic finishing systems are now employed to produce from 30,000 to 40,000-sq.ft. of finished plywood per eight hour day, using a minimum of direct labor.

Some firms prefer automatic reciprocating spray machines for applying the pigmented ground color coat and the final clear protective coatings. Others use spray application for the ground coat and a pressure curtain pouring machine to uniformly spread the clear protective finish coats. Still others use roller coaters exclusively.

For quickly drying the coatings applied, some firms use a combination of infrared electric and indirect-fired gas convection oven, while others use straight infrared electric ovens or tunnels. A number of manufacturers of prefinished wall panels are using roller coating

application and infrared electric drying.

The color of the ground coat will depend upon the specie of wood to be simulated. Some firms use pigmented nitrocellulose materials; others use ethylcellulose, while still others prefer vinyl materials for this color coat.

But before we get too far into the ground coating, printing and clear coating of the face sides of panels, let's keep in mind that the back sides of all panels must be coated too—to seal the wood and thereby prevent the entrance of moisture. A special backing sealer is normally employed; it is designed to compensate for the physical sealing effects of the color coated face side to minimize any cupping, or warping and bowing of the panels.

Ground Coat and Back Sealer Can Be Put on by Roller Coater

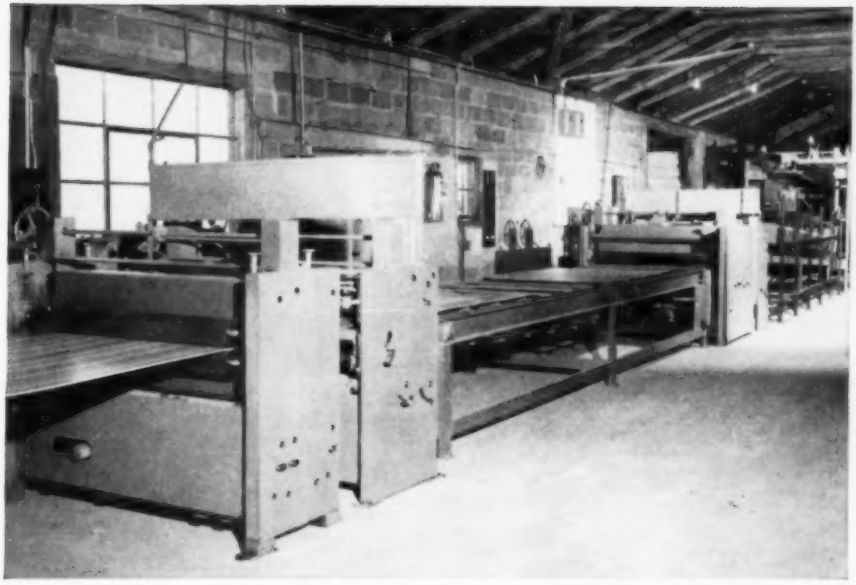
Both ground coat and backing sealer may be applied in a combination top and bottom roller coater. If the backing sealer application roll is adjusted to apply, for example, one gallon of sealer for each 1200-sq.ft. of surface, the coating will dry to touch in 15 seconds. This fast drying will prevent any serious build-up on the conveyor.

The ground color coat material is generally used at 40% to 50% solids. For opaqueness it is advisable to put on a film thickness of ¾ to 1-mil as measured when dry. Depending upon the type of material used, a flash-off (air drying) period of from 30 to 60 seconds should be allowed before the panels are force dried. The finish supplier of the ground coat material is in position to recommend the correct flash-off period. It may be advisable to provide an enclosed tunnel between the roller coater and the drying oven through which the panels travel during the flash-off period to prevent air currents or air turbulence, and to prevent dust and flying particles from contacting the freshly coated surfaces.

Mechanical Transfer of Panels Permits Close Pack in Oven

Thus far the panels have traveled lengthwise through the roller coater and flash-off enclosure. Some advantage may be gained at this point by transferring the panels to a wider conveyor (126-in. or 150-in. wide) installed at right angles to the first conveyor so that the panels will travel crosswise through the wind tunnel and oven—in other words, side by side in close pack formation. Positioning the panels crosswise permits force drying the ground coat without changing conveyor speeds—and without the use of an excessively long oven or drying tunnel. Transfer of the panels from one conveyor to the other can be accomplished mechanically by lowering the level of the transverse conveyor a few inches to permit panels to drop onto it.

At the end of a short flash-off period, the panels enter a wind tunnel where an adequate volume of clean filtered air is circulated and exhausted to remove the volatile solvent vapors. Otherwise the presence of these vapors would have a tendency to cause the ground coat to blister in the oven. The ground coat is then force dried in an infra-



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red electric oven for from five to seven minutes at temperatures ranging from 110° to 145° F., with relative humidity from 25% to 35% in the oven.

Cool-off Tunnel; Transfer; Graining Machines

The panels then enter a cooling tunnel for about five minutes wherein ventilating fans circulate cool, clean air to reduce the surface temperature to 80° or 85° F. In some locations, or during the hot months, it may be necessary to use refrigerated air in this tunnel to reduce the cooling time and the length of the tunnel.

When panels leave the cooling tunnel they are transferred at right angles to another conveyor so they will be moving lengthwise again. Ground coated panels are now ready to enter the rolls of the first graining machine. It may be necessary to have two of these graining machines in tandem, with about 30-ft. of space between them. This spacing is needed to allow sufficient drying time for the undertone ink (which is applied by the first machine) to flash dry so that it will not be picked up by the applicator roller of the second graining machine—the one which applies the overtone ink. Both graining machines have metal side guides to insure perfect alignment of the panels and registration of the graining. This removes any possibility of blurring the grain figure. In those cases where the desired grain and color effects can be produced in a single graining machine, the panels merely pass through but are untouched by the second machine.

Leaving the second graining machine, the panels pass through an oven for two or three minutes at 135° F., with a relative humidity of 35%. An exhaust duct capable of pulling 2000-cu.ft. of air per minute is installed at the entrance. Unit heaters capable of delivering 2000 to 3000-cfm. of air at 135° F. may be used for drying the applied graining ink. To reduce the sur-

Production line used for prefinishing plywood panels. It is installed in the plant of a large mobile home manufacturer in northern Indiana. Photo, courtesy of Union Tool Corporation.

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face temperature of panels to about 85° F., they are run through a cooling tunnel similar to the one used for cooling the ground color coat.

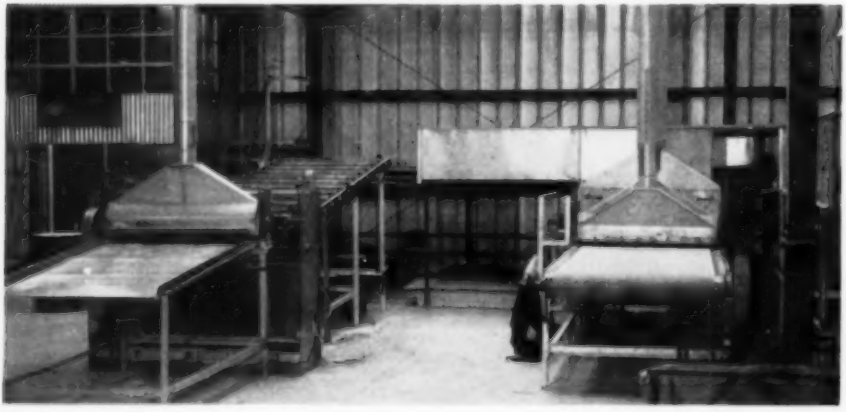
Clear Protective Coat Can Be Applied in Different Ways

Continuing in lengthwise position on the conveyor, the panels move through a machine in which they receive a clear protective finish coat. This coating may be either a lacquer type of material or a clear synthetic coating. The trend seems to be toward the use of a synthetic coating because of its greater resistance to wear and frequent contact with household chemicals such as grease, perspiration, crayons, nail lacquer, etc., as well as resistance to brief contact with any flame.

The clear protective coat may be put on by any one of three different methods. It can be applied by two roller coaters, by a pressure curtain pouring machine, or by an automatic reciprocating spray machine. Viscosities of the material will depend upon the means of application. For roller coating the viscosity would be about 60 seconds, for pressure curtain pouring about 45 seconds, and for spraying, about 25 seconds—all viscosity readings being taken at about 78° F., as measured in a No. 4 Ford viscosity cup. The dry film thickness produced should range from one to 1½ mils.

For roller coating it is customary to place two roller coaters in tandem, about 30-ft. apart. The reason for using two machines is to obtain sufficient build, to get better flow-out of the fast drying top coat material, and to coat the bottoms of the V grooves. Special black rubber rolls are suggested because they do not swell nor distort due to the action of the solvents in the coating material. The No. 1 roller coating machine has a special applicator roll to reach down and completely coat the V grooves. Obviously, bet-

The roller coater on the left is where the face sealer and back sealer are applied. At the right is where the final operation is performed—where the panels are polished, inspected and made ready for packaging. Photo, courtesy of Georgia-Pacific Corporation.



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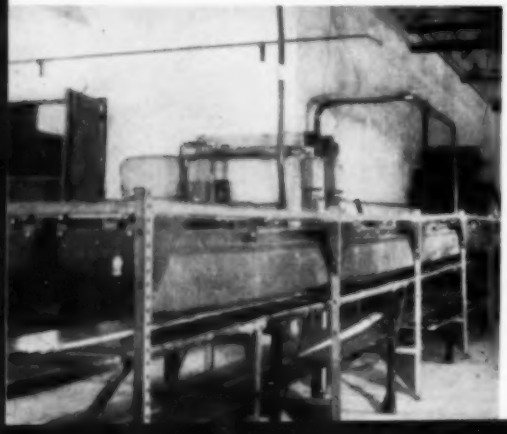
ter flow-out and build are obtained by applying two thinner coats than by attempting to lay on one heavy coat. There should be about two minutes of elapsed time between coats.

Pressure Curtain Pouring; Automatic Spraying

The use of a pressure curtain pouring machine also offers a means of applying the clear protective coat. The same amount of material is applied to the face of the panel and to the V grooves. It is "laid down" in a smooth uniform thickness film. Of course, the speed at which panels move through a pressure curtain pouring machine is considerably faster than anything else in the finishing system, and this high speed would have to be taken into consideration when planning the setup. After many tests with different types of coating materials, a wet film thickness of 2½-mils is the least amount that can be applied. A thinner film than this usually causes a break in the curtain and, as a result, you have a skip or bare spot on the surface of the panel. The coating material must be specially formulated for pressure curtain pouring.

Automatic spraying of the clear protective coating will produce good results if a proper balance is arranged and maintained between conveyor speed, atomizing and fluid pressures.

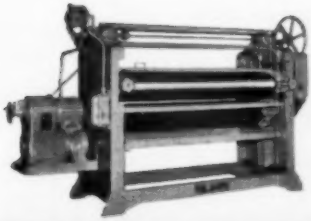
Partial view of the conveyorized infrared drying equipment used in one plywood plant for force drying the finish on flat panels.



Drying the Protective Coat; Flash-off; Ventilation

Regardless of which method is used to apply the clear protective coat, a brief flash-off (air drying) period, in still air, must follow before the coated panels enter the force-drying tunnel. Then the panels are mechanically transferred from a lengthwise to crosswise position on another conveyor so they will move through a wind tunnel, force drying oven and cooling tunnel in a crosswise position. This set-up is almost the same as that used for drying the ground color coat. Depending upon the type of coating material used, the time periods and oven heat will vary some from those used for drying the ground color coat.

For some special coatings (for example urea hardened alkyd materials), it may be desirable to use a 4-zone oven in which the panels are subjected to say 30 seconds in each zone, at surface temperatures ranging from 100° F. in the first zone to 145° F. or more in the last zone—with 35% relative humidity in the oven. Leaving the oven and traveling to the cooling tunnel, the surface temperature will be close to 150° F., in which case a minimum of about seven minutes may



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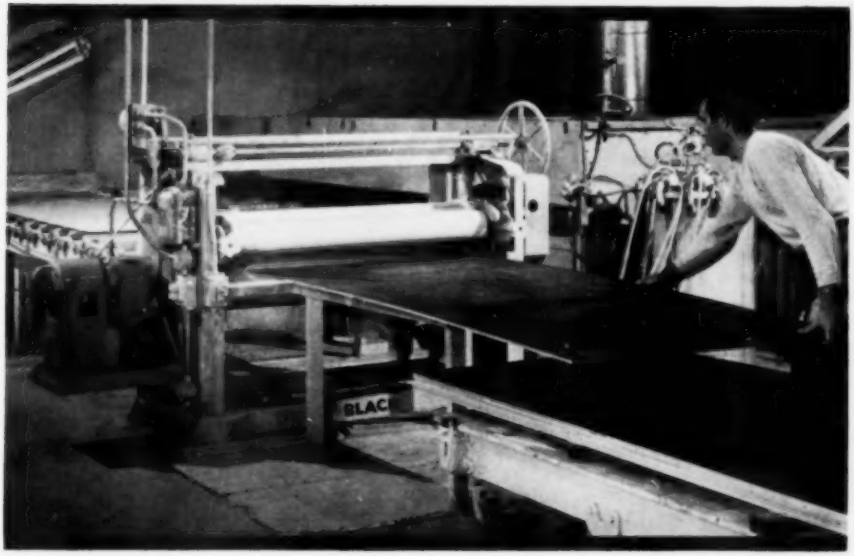

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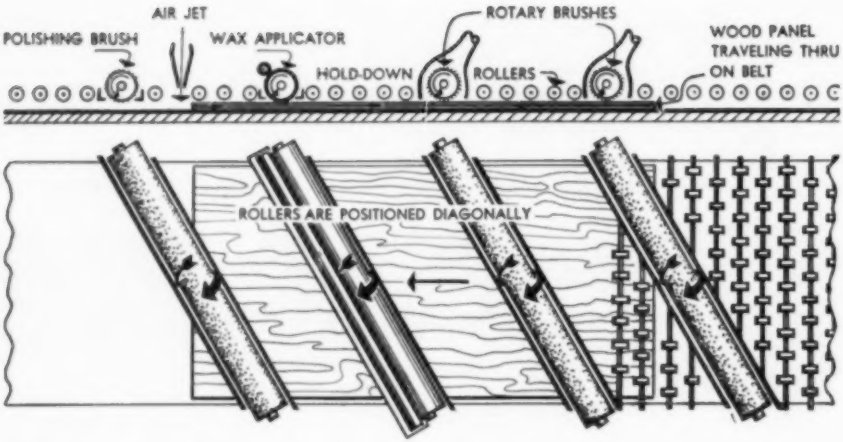

A rough sketch showing elevation and plan views of a machine that brushes off the lacquer gloss, applies a coat of liquid wax, dries it and then lightly brush polishes the waxed surface.

be required to reduce the temperature for any subsequent rubbing or polishing operations, if desired. Ventilating fans and, in some cases refrigerated air, are used in this last tunnel.

Mechanical Rubbing, Waxing and Polishing

When the finish coated panels leave the cooling area they are again mechanically transferred to another conveyor to proceed lengthwise through a rotary brush machine to remove the high gloss of the finish coat. Then wax is applied and the surfaces are polished as the panel passes under a rotating soft bristle brush.

The panels are carried through the machine on a flat belt which runs over a smoothly polished solid flat bed—this to provide a firm level support for the panels as they travel through the machine.

Light pressure rollers (similar to those used on some gravity roller conveyors) hold the panels firmly against the belt. These narrow rollers have ball-bearings. They exert only light pressure to hold the panels flat so as to prevent the leading edge of one panel from riding up or bending upward against the cylindrical brushes.

The first roller brush is helically wound; it has coarse tampico fiber set at an angle in relation to the direction of conveyor travel.

The second brush is of fine tampico fiber; it also is helically wound, but in reverse from the first brush. Above each brush a sheet metal hood is connected to a suitable exhaust system to remove all dust particles resulting from the brushes rotating against the coated panels. The rotary brushes are about 3-ft. apart. Pressure of the brushes against the finished surface must

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Mac's Satin Finish Wooling Lacquers are made in different sheens which may be a flat comparable to a 20 sheen or as bright as a 75 sheen lacquer. They may also be used without steel wooling and will produce a fuller and more homogenous finish than the regular semi-flat lacquers.

Mac's Satin Finish Wooling Lacquers are available in water white light resistant, for use on white or pastel finishes, or in the regular lacquers for the darker shades such as mahogany, walnut, etc. The water white satin finish wooling lacquers are universal lacquers and may be used on both white and medium to dark finishes wherever space for storage is important.

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be carefully adjusted to give just the right amount of rubbing; otherwise "spider-webbing" may result or, if the pressure is too light, a perfectly rubbed effect will not be produced.

Wax may be applied in two ways. One way is to use liquid wax and roll it onto the surface by a rubber faced roller. This roller receives just the right amount of wax from a metal roller that revolves in a pan containing liquid wax. The quantity of wax will be controlled by pressure between the two rollers. An air jet duct extending across the entire width of the machine is used to quickly dry the wax coating before the panel passes under the soft bristle brush which polishes the waxed surface.

Another method of wax application is to blow a controlled amount of powdered wax onto the surface of the panel. Immediately following application of the powdered wax, the panel passes under a row of electric radiant heater units which are adjusted to give just enough heat to melt the powdered wax. As in the application of liquid wax, air jets are used to quickly dry the heated wax coat before it reaches the soft bristle brush.

Leaving this machine the panels are given final inspection before they are packed face to face in cartons, with thin paper slip sheets inserted between the panel faces.

Editor's Note: Some technical finishing information used in this article was supplied by Reliance Varnish Co.

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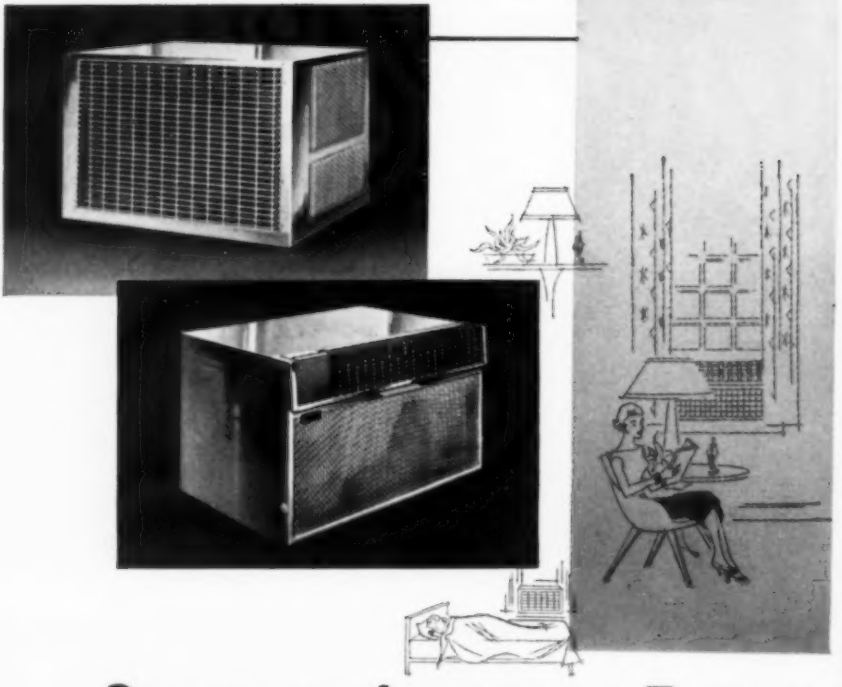

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EDITORIALS

Changing Times Dictate Changing Methods; Ideas

★ In the industrial finishes industry, the relation between suppliers and customers is probably of more paramount importance than that usually encountered in other fields. Where the salesman concerned with selling goods and materials to the retail outlet is interested mainly in how the product sells to the public, the salesman of paints and lacquers is expected to offer a wide background of technical experience and advice.

One must therefore examine the reasons why purchasers of industrial coatings change vendors. Where the change is made, (rather often we suspect) because a cheaper price has been offered, no explanation is necessary. That situation has been discussed on many occasions. However, when a user has been purchasing paints from one particular supplier for a period of let us say two years or more and suddenly decides to change because quality has dropped or some other similar excuse, it is believed that a more thorough examination is required.

Very few manufacturers of organic finishes allow their products to deteriorate. Most maintain qualified staffs of control chemists in order to retain a high plateau of quality. Of course an individual batch may from time to time have a deficiency. That unfortunately is completely uncontrollable and happens in the best and most advanced facilities.

Actually, however, there is a basic concept which so very many finishers fail to accept. Times do change. The chemist in the laboratory for the most part must always be aware of new ideas, new methods of application and of course newest formulation techniques. Very many finishers, particularly those whose experience has covered a considerable longevity, refuse to recognize the impact of change. They view the chemist in the laboratory as a young upstart whose theoretical knowledge is completely inferior to the practical experience of the finishers.

Many times it is found that methods and ideas must change. Experimental data and evaluation have shown that for example the adhesion of a particular coating is dependent on a particular type of primer. When so informed by his supplier, the finisher scoffs and states that he has been doing the same thing for many years without a primer and sees no reason to change.

The buying public has altered their method of product evaluation. They upgraded their standards and the product which has not improved is considered quite passé. The finisher then, on being informed that competitors products are far superior immediately places the blame on the deterioration of the paint or lacquer. Actually it is merely that the parade has passed him by.

Unfortunately a situation such as this occurred only recently and loss of substantial business to the job finisher and loss of an excellent customer to the finishes manufacturer was

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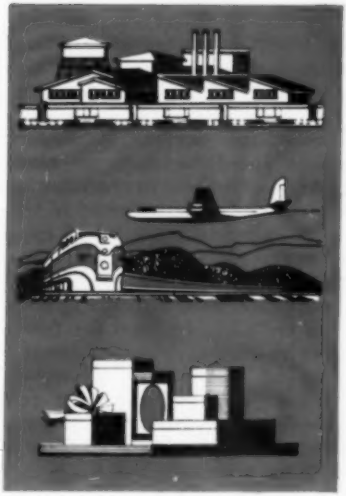

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certainly to be lamented.

Naturally it could easily be construed that we expect the finisher to jump at every half baked proposition which is propounded. That is far from the truth. Rather it is hoped that instead of rejecting any change, the finisher utilizes his many years of experience in cooperation with his suppliers technical representative, to properly evaluate a prospective improvement for the mutual benefit of finisher and supplier. Both may suffer immediately and directly from coating failure but it must be remembered that the whole industry receives the setback in the long run. Change with the times and enjoy the crest of the tide.—*Norman I. Gaynes.*

Future is Bright For Foreman Finishers

★ When the writer first entered this business of finishing, the art of spraying was just coming into its own. Experienced sprayers were a scarce commodity, experienced foremen almost non-existent. Despite the scarcity, the asking price for sprayers was 40¢ an hour; another dime bought you a foreman. And, with those munificent wages you were entitled to a pretty fair day's work. How things have changed.

Over the years, it seems that almost everyone has become a sprayer.Many companies make a practice of assigning a certain segment of their labor force to part-time work around the finishing room. Little by little, they acquire a bit of practice with the spray gun, and finally they start listing themselves as sprayers on their employment applications. A few are good, most are not even mediocre. Perhaps this is the reason why sprayers have not reached the wage level comparable to those of other trades. There are just too many of them, with not enough good ones to carry any weight.

The foremen, however, have done right well by themselves. Industry, in recognition of the importance of key personnel, keeps them happy with handsome wages and for those who can really produce for employers who want production, earnings well up in the five-figure bracket are not exceptional.

The industry is presently undergoing the same modernization convulsions that are taking place in all phases of manufacturing. Manufacturers large and small never have shown such interest in automation, in all the wonderful products of modern technology. Flow-coating, electrostatic finishing, conveyorizing, automatic sprayers, anything will bring immediate, serious inquiry if it promises speed, savings, or (let's be honest) a little less dependence on human frailty. No investment is terryfying if it holds promise of competitive survival.

What does this mean to the finishing personnel of the future? Well, there will certainly be need for fewer and fewer sprayers. It might become something of a lost art. However, there is a brighter side to that picture. Since none of the completely automated systems are always capable of doing a perfect job, there will probably always be a need for a few artists to touch-up the hard-to-reach areas as they shoot past their stations. Since these fellows will be necessarily fast and skillful, they will be very important, commanding top wages.

In the supervisory picture, nothing could be more promising. As the equipment becomes more completely engineered, so will the responsibility and importance of those who will handle it and control it. Never was there a better time for an intelligent young man to plan a career

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in supervision or in servicing these technological marvels. Never was there a time when a basic understanding of electronics, mechanics, and chemistry combined can be of more value than in the modern finishing room. Equally important is the ability to set-up and tool-up, for from this is squeezed the last bit of efficiency and quality from which the machines will repay their investment. —*Ken MacKenzie.*

In Finishing, How Good is Good?

★ There is a long term trend toward more precision in discussing tests on industrial finishes. In many instances general statements have lead to misunderstandings and confusion. Take the statement: "This enamel was in good shape after 300 hours in the salt spray cabinet." If the test panel was phosphatized, had 2 mils of enamel and was baked 30 minutes at 350°F., the results might be much better than the customer would get if he applied 1 mil of the enamel over bare steel and baked 20 minutes at 275°F. Another point —what is meant by "in good shape"? Was the panel in perfect condition after 300 hours? If not, how much blistering, rusting or other failure was there?

Another statement: "This finish will dry in an hour." How dry is it in an hour? Is it dust free, dry to handle, dry to pack or what? If it it dry enough to handle after an hour at room temperature 80°F., would it still be dry enough if the room temperature were 60°F.?

Test results and paint properties should be talked about in specific terms. If a property can be given a numerical value there will be less doubt about what is being said. To say that an enamel under certain given conditions (of thickness, method of application, type of substrate, etc.) had a gloss of 95 on the 60° glossmeter is more specific than to say the enamel had high gloss. Another company with a competitive enamel having a gloss of 85 might also say their enamel had high gloss.

The examples above illustrate the point. General statements can be quite misleading. It is not that there is an attempt to deceive (although there is a natural tendency to put one's best foot forward), but vague terms such as "a durable finish" or "excellent gasoline resistance" can have various meanings to various people. To get the full story be sure to get the details and to get *all* the details.—*Eugene V. Gollstein*

New Color Effects in Flock Finishing

When flock fibers are applied to a product for purely decorative reasons, the usual procedure is to select an adhesive, the color of which is the same or about the same as the color of the flock fibers to be used.

New and different color effects are possible through the use of a different color adhesive than that of the flock fibers. A knowledge of color combinations is necessary, and then some experimenting is required to obtain the exact shade, which after a different color of flock has been applied, will produce the desired effect.

In mixing adhesive colors it is advisable to make accurate records of the amounts and the exact colors used as well as the color of the flock fibers. A color sample should also be marked and retained. This information will prove invaluable in duplicating the operation at some future time.—*P.C.B.*

NOW—a precision Wet Film Gauge at a price everyone can afford.

The Nordson WFG-100 Wet Film Gauge is a hardened steel, precision ground instrument. Wet film thicknesses ranging from 1/2 to 20 Mils* can be measured quickly and accurately. Measuring is simple and foolproof, and—the price, only $6.00 (even lower when ordered in quantity).

*Write for information regarding special "Ranges" to meet your requirements.

Have you investigated Nordson Airless Spray Painting? "Spray Painting Without Air".

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THE BEST IN SPRAY COATING EQUIPMENT

WRITE FOR AIRLESS SPRAY COATING BROCHURE

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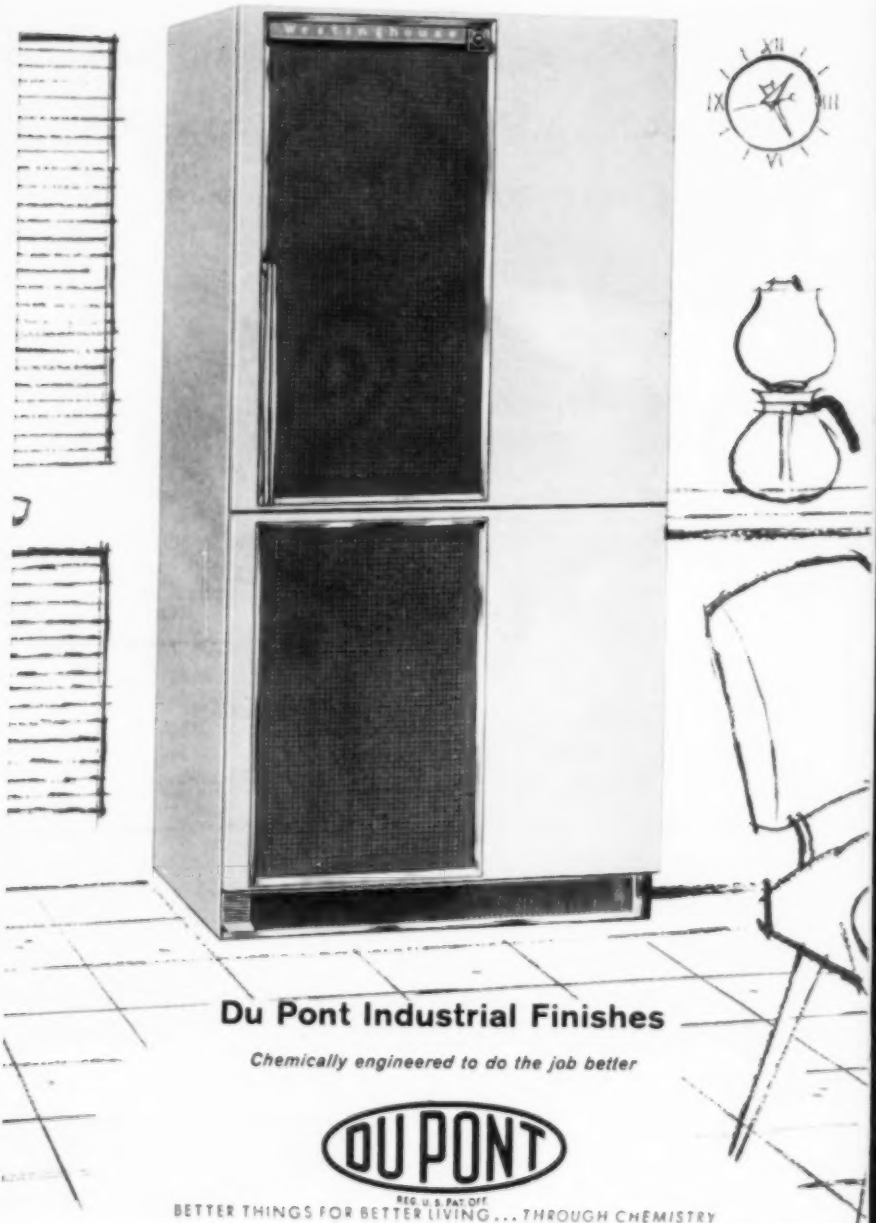

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For more data, circl

Westinghouse Custom Imperial line

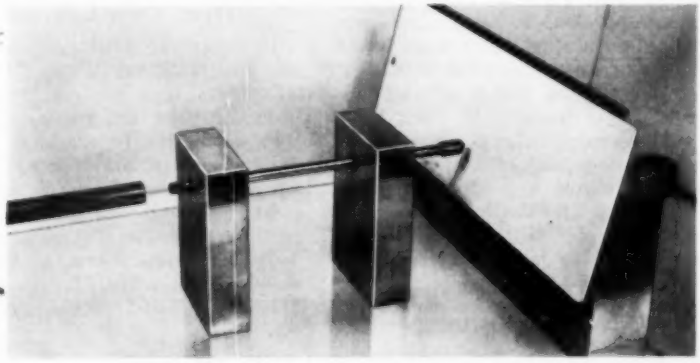
gets a custom-made Du Pont DULUX® Enamel Finish

A choice of cabinet colors offers extra sales appeal to the Westinghouse refrigerator line. The appliances' practical beauty—they're as durable as they are attractive—comes from a Du Pont Finish, developed especially for the job.

Product development is a regular Du Pont service. From long experience with products as diverse as farm machinery and filing cabinets come applications to many more. In fact, of the more than 12,000 Du Pont finish formulas serving industry today, a good share were custom-developed.

And whether you now use flow coating, roller coating, dip-tank finishing, hand-spray or automatic systems (including electrostatic), there is a Du Pont finish for you.

Improvement of the product *and* production is a Du Pont function. To draw on this experience yourself, simply write: E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.



Chip Resistance Tester subjects finish to blows of steel plunger, activated by spring action. Adjustable for force of blow and angle of impact, tester demonstrates how finish formulations stand up in use.

183 on colored card.

LETTERS from READERS

That Flow Coater For Fast Color Changes

Please send further information on the flow coater referred to in March issue of *Industrial Finishing*, in an article by E. A. Zahn entitled "Fast Color Changes in Flow Coat Painting".—*J. F.*

In a letter we are giving you the name and address of this company and several others that design, build and install flow coating machines.—*Editor.*

Consultants Wanted

We are interested in contacting consultants who are specialists in automotive finishes and resins. They should be in constant contact with the automotive industry and also be equipped to supply help in their resin formulations. Our foreign clients are interested in a long-range association with a man or group of this calibre.

If you have the names of any consultants in or near New York City, it would be most helpful. If not, any names we may contact will be appreciated . We are urgently interested in this matter and thank you for your always appreciated cooperation.—*Name on request.*

Graining Rollers

We are interested in obtaining the names of manufacturers of hand rollers for wood grain finishing. I notice, in August issue, that there are many manufacturers of automatic machines for this process. At the present time this is purely experimental with us, therefore we would require a hand grain roller only.—*K. Mfg. Co.*

In a letter we are giving you names and addresses of several manufacturers of grain rollers. We are not sure which ones can supply exactly what you want.—*Editor.*

Graining Equipment

Will you please give us the names of as many manufacturers as you know of who make equipment for printing or graining panels?—*N. C. Furn. Mfr.*

Several of these appear in the advertising pages of recent issues of this magazine.—*Editor.*

That Thin Oil Finish

In regard to your recurring inquiries about, "That Thin Oil Finish", we notice that in just about every issue of your magazine some reference seems to be made to these oil finishes and a source of supply. We would appreciate your adding our company's name to the list of manufacturers for this type of oil finish. —*Watco-Dennis Corp., Atlanta; Houston; Lima, Ohio; L. A. and Santa Monica, Calif.*

Ceramatex Found

A reader of your "Letters from Readers" column called our office and indicated that someone was interested

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in Ceramatex. Unfortunately, he got away before leaving his name with our operator. At any rate, we have finally located the article he referred to (Jan. issue, page 76) and note the inquiry asked for information on Ceramatex.

I will give you a short resume of the product.

Ceramatex is a series of coatings applied by spray as a replacement for tile. These coatings vary, depending on their formulation. They involve either basically lacquers, vinyls or polyesters. An infinite range of colors is available in each, and each is protected by a heavy duty clear coating.

The name Ceramatex is not registered. There is a line of waterproofing materials being made by a Southeastern manufacturer whose name is not known to me but who, we understand also uses the name Ceramatex. *—Ceramatex Division, C. J. Koenig Co., Inc., 3550 S. Iowa Ave., Milwaukee 7, Wisconsin.*

". . . . . and then I bent over to see how things were going in the centrifuge . . . . ."

Laboratory Top Finish

We manufacture laboratory and other institutional furniture and need to find materials and process information for acidizing wood birch tops for laboratory use. Please tell who can supply us.—*T. W. Corp.*

In a letter we are naming several sources of supply for durable finishes for laboratory table tops.—*Editor.*

Want Independent Consultant

We manufacture hospital metal furniture, and are presently planning to have installed a Bonderizing, cleaning and baking system. We would like to get the names of several independent engineers who are familiar with various systems, and who could act in a consulting basis, check our drawings, locations and specifications. Although we have had the help of manufacturers of equipment, we prefer to have a final check-over by an independent consultant.—*A. Mfg. Co.*

In a letter we are giving you names and addresses of several independent consultants.—*Editor.*

To Start Graining Plywood

In January, 1959, issue, we read, on page 82, the article, "Cost of Graining". At the end of it you refer to the October, 1958, issue, in which is taken up an article about "Production Wood Graining".

We shall be glad to receive from you a copy of the October, 1958, issue, or an overprint of the article. If you have more literature on this subject, we would be very glad to receive it.

Finally, may we inform you that a short time ago we subscribed for your magazine, because we are planning

The man from "Minnesota" was here

Result: trend-setting color styling and long-lasting protection for famous sports boats

An Aristo-Craft is beauty in motion . . . a sports boat with the look of elegance usually found only in expensive hand-crafted boats. The Atlanta Boat Works, Atlanta, Georgia, makers of Aristo-Craft Boats, are pioneers in applying mass production techniques to boat building. In their modern factory, Aristo-Craft Boats are turned out with the precision and care of a fine automobile. Into every boat goes select bonded marine mahogany given long-lasting protection and brilliant beauty with MINNESOTA PAINTS top quality products and marine finishes.

MINNESOTA PAINTS products used in the complete finishing system for these boats include mahogany wood filler and sealer, marine spar varnish, and colorful enamels that dry hard and firm with a surface sealed against water. Through discriminating color styling and the superior quality of these specially formulated finishes, MINNESOTA PAINTS has added new eye-appeal and buy-appeal to a fine line of water craft . . . another example of the scope and versatility of MINNESOTA PAINTS design and research services. Whatever your product . . . MINNESOTA PAINTS can provide the right finish. Call the man from MINNESOTA.

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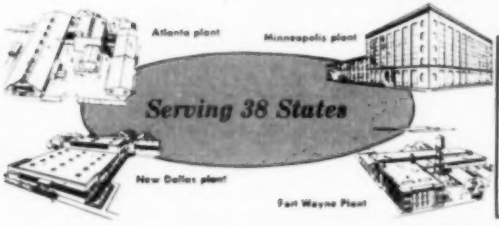

Minnesota PAINTS

INDUSTRIAL FINISHES DIVISION

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to start the printing of plywood and hardboard.—*H. W. F., Lt., Grouw, Holland.*

We are sending you what information we have.—*Editor.*

Finishing Consultant

In your November, 1958, issue, there is an article entitled, "A Finishes Consultant" by E. A. Zahn. We gather that Mr. Zahn is in the consulting business and is available for such services. We would like to contact him.—*M. F. Corp.*

Mr. Zahn's address is 4304 Alton Rd., Louisville 7, Ky.—*Editor.*

Bowling Pin Finish

Can you put us in contact with any manufacturers who supply the necessary material for plastic coating bowling pins?—*W. J. S.*

Yes, in a letter we are submitting names of manufacturers. See also the advertisement in March issue, page 68.—*Editor.*

Prefinished Plywood Panels

We would like to get information about finishing systems suitable for the following:

1) The production of prefinished plywood panels.

2) The production of prefinished hardboard (Masonite) of the type sold in the U. S. under the trade mark of Marsh Wall Tile, and others.

3) Durable finishes for screen printing Masonite hardboard (both tempered and untempered) for signs, marquees and roofing sheets.

Because of import restriction we are not always able to import by brand names, and need to know the chemical types of finishes recommended.—*I. E., Cali Columbia, South America.*

In a letter, we are giving you names and addresses of several companies, some of which can probably supply what you want.—*Editor.*

Coiled Pre-Painted Steel

Can you give us the names of some companies who can supply pre-painted sheet steel or coils?—*S. S. W.*

One of several is Enamelstrip Corp., Allentown, Penna.—*Editor.*

"My door is always open. I want to share the problems of each individual employee here . . . just like one big happy family. Now—what kind of stupid mess have you got yourself into this time?"

Zinc Chromate Primer

MIL-P-6889A	AN-TT-P-656B
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AMS 3110

We will ship any reasonable quantity of above specifications **same day** as ordered.

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for prompt delivery of uniform industrial finishing products

RANDOLPH PRODUCTS CO.

CARLSTADT, NEW JERSEY

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Where's New Wrinkle?

In your July issue (pages 108-109) there is an article on wrinkle-type finish made by New Wrinkle, Inc. We would like to contact these people but we cannot find their address. If you have their address available, will you please send it to us?—*H.Mfg.Co.*

New Wrinkle's address is 1771 Springfield St., Dayton 3, Ohio.—*Ed.*

To Finish Wallboard

We are interested in a machine to automatically stripe simulated hardboard, and would appreciate your letting us know if you have knowledge of any company here in the U. S. A. manufacturing such a machine.

We are also interested in learning of manufacturers, here in the U. S. A., who are making simulated tileboard, grain finished plywood and hardboard, as well as manufacturers of grain printing machines.—*X. Y. Co.*

In a letter we are giving you what information we have, in answer to your questions.—*Editor.*

"Don't worry, it can't talk—besides, it can keep a secret!"

A Durable Gold Lacquer

We are interested in obtaining a source of supply for "A Durable Gold Lacquer," as publicized in recent issues of this magazine.—*K. & G. (Decorations).*

Also asking for the same gold lacquer are the following: Adams Lighting, Inc.; W. E. Z. Displays, Inc.; R-Way Furn Co.; and Benvenutti & Rivera of Yauco Puerto Rico.—*Ed.*

We are interested in the note appearing on page 82 of April issue concerning "Gold Lacquer Inquiries". Our Proxcote No. 26-105, frequently advertised in the pages of this magazine over the last year, is one of the best of these "gold lacquers".—*Pyroxylin Products, Inc., 4851 S. St. Louis Ave., Chicago 32, Ill.*

Baker Distributing Co. Will Sell Wilkerson Equipment

Appointment of Baker Distributing Co., 1105 W. 11th St., Cleveland 13, Ohio as a distributor of Wilkerson Corp., Denver, Col., is announced.

Baker Distributing Co., specializes in marketing all kinds of product finishing equipment and supplies in Ohio, Indiana, and southwestern Pennsylvania. The addition of Wilkerson's compressed air filters, regulators and lubricators will enable them to offer their customers equipment to keep their factory air lines clean and dry for better paint spraying and other finishing operations.

Emphasis Now on Fineness of Grind

In developing government paint specifications the emphasis in recent times is being placed a bit more on fineness of grind of the pigment dispersion. This is particularly true of the aircraft lacquers and primers. As a result, many of the firms using these government specification materials on their products now test for fineness of grind as part of their incoming material control inspection procedure. The paint manufacturers have been using the Hegman or Grind gage for many years as a matter of course within their own plant, but the use of this instrument by relative newcomers without the full knowledge of the variable ramifications, has created at times unnecessary problems and misunderstandings.

The grind gage is a highly machine surfaced steel block with a tapered channel one-half inch wide and two inches long. Over the two inch length of the channel the depth varies from .005" to .000", and is marked from 0 to 8 at intervals of 0.2". At each of these scale numbers the channel depth decreases by one-half mil or .0005". The numbers on the block which run from 0 to 8 are North Standard Units or "NS" scale. A drawdown blade with 0.01-in. contact point is also part of the gage equipment.

In order to test the material in question, a large drop of the paint is placed at the head or deepest part of the two inch channel. The drawdown blade is held vertically

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☆ SPACE-COTE
An engineered finish formulated for use on Missiles, Space Vehicles, and Tracking Equipment.
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A conversion Coating that AIR DRIES or low bakes at 110° F. with all the properties of a fine high bake enamel. In primers Clad/Lytic has terrific corrosion resistance!
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and at right angles to the channel. With an even pressure and uniform speed the blade is drawn across the gage so that the paint exactly fills the tapered channel. The wet film must be inspected immediately before any drying has set in, and the NS scale read at the point where the first cluster of particles appear.

In general the mechanical technique does not present a problem. Rather it is the question of the reading technique which is somewhat dubious. The inexperienced or uninformed inspecting technician will take the reading at the point of the first individual particle. Reference to the specification testing procedure concerned will tend to clarify this point but unfortunately the human failing of not admitting one's error sometimes reveals a stonewall obstinacy.

The checking of lacquer grind is a tricky operation, particularly on the finer Hegman readings. This method is designed for wet film testing only. In the areas on the gage where the thickness approaches zero, the evaporation rate of the lacquer is usually so rapid that false and improper readings are obtained. Because of this, it was actually not meant to check lacquer grind with this instrument, but some do get around this feature by addition of small amounts of isophorone to the lacquer. The extremely slow rate of evaporation of this particular solvent improves the accuracy but by no means assures one of a really true reading.

This is another instance where coordination of testing procedure is extremely beneficial to both vendor and purchaser. However it is extremely unfortunate to find quality control personnel who refuse to learn or bend in their determinations. "Grin and bear it" is not a solution to a problem but sometimes that is the only avenue for a paint manufacturer to travel.—*Norman Gaynes.*

Bulletin Aids Selection of Correct Spray Equipment

Know your spray painting problem? Then relate it to the equipment for the best possible job with the Binks new 8-page spray equipment selection. The guide removes all guesswork from the selection of spray equipment for everything from furniture touch-up to conveyor line production.

The bulletin describes the three steps necessary before selecting equipment for a specific job, maintenance or finish spraying, the second, size of the job, and third, occasional or regular use.

With these questions answered the charts quickly select complete equipment for the job. For a copy, write Binks Mfg. Co., 3116-40 Carroll Ave., Chicago 12, Illinois.

For Barrel Finishing Compounds

Techline Division of Wheelabrator Corp.,1144 Avenue V., Vicksburg, Mich., offers a new Chempound Selector Chart, said to be the first such guide to application of barrel finishing compounds to be published in the industry.

The Chempound Selector Chart is designed to speed and simplify the ordering of barrel finishing compounds, by pinpointing the Chempound which is recommended for any given process on a wide variety of materials.

Faler Becomes V.P. Of Kolene

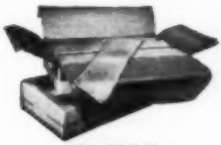
The board of directors of Kolene Corp. elected John A. Faler, vice president in charge of engineering. He has served as chief engineer since 1950.

Faler, a graduate of the University of Detroit is a member of the Engineering Society of Detroit, The American Society of Mechanical Engineers, and the National Society of Professional Engineers.

Kolene manufacturers molten salt bath processes and equipment.

For Dust Free Finishes!
BOND TACK CLOTH

IN ROLLS
Cut off any size piece to use as needed.



IN BULK
Cut and folded. Ready to use.

STAYS SOFT AND TACKY
A SPECK-FREE FINISH EVERYTIME

Now Available in Rolls or Cut Bulk—White or Gold.
In Four Different Types of Cloth

Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36" wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up! Choice of Standard, Extra Tacky or Less Tacky as desired.

The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" or 9" x 18" for ease of handling. ALL BOND TACK CLOTH is **Spontaneous Combustion Proof, Lint-Free** and **Wax Free**. Gives a sparkling speck-free Finish every time. Clean and sanitary. No waste.

TRY THEM and COMPARE RESULTS.
Samples Gladly Sent Upon Request.

Bond. **CHEMICAL PRODUCTS CO.**
"The Tacky Wiper Specialists"
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A Warranty of Satisfaction in Every Carton

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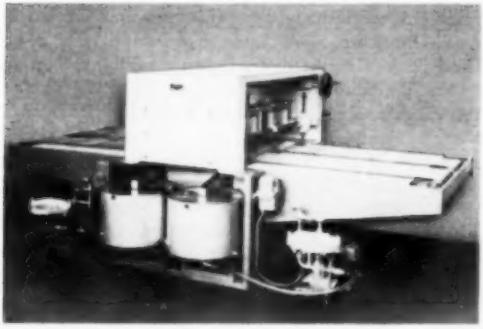
Save By Pressure Curtain Application



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Applies all finishes uniformly to practically any size or shape product. No waste. Unused material recovered by recirculating system.

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QUESTIONS and ANSWERS

Why Does My New Hot Lacquer Shrink?

Recently we purchased a hot lacquer unit from one of the leading manufacturers. I have been trying to reformulate my 4-coat hand rubbed cold lacquer finish on wood and adopt a new formula, using hot lacquer. I have been confronted with various problems, as one will when changing any system, and most of them I have solved. However, there are two problems that continually assert themselves and I don't seem to be able to solve them.

The greatest offender of the two seems to be what I call "dry down." This terminology may be incorrect but the description fits very well. Two days after the pieces have been finished, air dried over night and polished to a mirror-like finish, the build I have attained seems to disappear by almost 25%. On walnut wood, which has been well sanded and filled before finishing, the grain seems to come up and show through the finish.

In some experiments I have applied two coats of 38% solids, gloss hot lacquer to well sanded and filled wood, eliminating the sealer coat and any further sanding between coats. This formula would be ideal, insofar as cost and production are concerned, if it would work. The lacquer has excellent build, rubs well and looks beautiful when first finished, but after two days it doesn't compare with my cold lacquer finish. I have tried an additional coat, using three coats of 38% solids hot lacquer, and very nearly eliminated this "dry down," but when tested the mil thickness is between 8 and 11 mils. Crackage or cold check is the result. I can't seem to hit a happy medium between an excessive build and this "dry down."

Most everything I have tried has been under the advice and direction of a technical representative of a lacquer manufacturer. Our final attempt was made with a cold sealer and two coats of 32% solids hot lacquer, but to no avail. Even the lacquer representative admitted that the cold lacquer finish looked better. This last attempt was made in the early fall of last year and I have not seen him since.

Everything I have read about hot lacquer seemed to point it up as a natural for our product, if I can get all of the bugs out of it.

I am now turning to you with perhaps an impossible problem, in the hope that another of your subscribers might have written to you with a similar problem. On past occasions you have revealed a wealth of good reliable information that has helped me tremendously.—*K. F. C.*

Your problem is a fairly common one but there are means of overcoming this difficulty. Your basic trouble is one of *shrinkage of the lacquer film, which is due to solvents evaporating from the finish after you have completed your polishing operation.* Two things contribute to magnify this problem. One is that you are attempting to put on in one coat, by the hot spray method, the equivalent of two coats by your former method of using room temperature lacquer.

When you double the film thickness of a lacquer coat (no matter by what

SERVING THE
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SOUTHEAST
Since ... 1910

Our tailor made
FINISHES*
for metal
products include
white baking
enamels for
water heaters!

INDUSTRIAL FINISHES* DIVISION
GILMAN PAINT & VARNISH CO.
CHATTANOOGA, TENNESSEE

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method you apply it) you more than double the time required for all of the solvents to leave the film.

The second factor that aggravates the problem is the common tendency to have a higher proportion of slow evaporating solvents in the hot lacquer formula.

These two factors tend to entrap solvents in the lacquer film (which may take days to completely evaporate) and cause the shrinkage you have experienced.

One other thing can cause solvent entrapment and that is the wrong type of sealer for hot spray. If your sealer is not doing its full job, it will allow the solvents to penetrate and soak into the wood, which can then take days to evaporate. I would look for this deficiency as the probable cause of your shrinkage difficulties.

The simple way to find out whether the sealer is doing its job is to make up a test panel sprayed with the sealer in the usual way. Then mask off half the panel and give it a second coat of sealer. Let that dry, remove the masking and then spray your hot lacquer over the whole panel. If your sealer has been the weak link in your finishing cycle you will find the shrinkage will be much greater on the portion of the panel that had only one coat of sealer. Naturally, if tests show that the sealer has been the cause of your difficulties, the remedy is quite obvious.

Now if the sealer does not test out deficiently, I would seek for a solution to the problem in several ways.

1) Either prevent the excessive entrapment of solvents which can not escape in the allotted time, or. . . .

2) Ignore the problem of entrapment but drive out the solvents by appropriate means, such as a forced drying room.

In other words, either prevent the difficulty from coming up—or, if it does come up, take proper corrective steps. Which plan of action is best suited for you depends upon conditions in your factory.

In carrying out the preventative program, you can start out by using a proven good grade of cold lacquer. Set the heater temperature to about 110° F. and then, by 5° or 10° steps, increase the temperature of the heater until you have arrived at the maximum temperature at which your selected lacquer can best be sprayed. You will possibly find this ideal temperature to be somewhere between 125° and 145° F.

Using the lacquer this way, you are obtaining only partially the benefits that hot spray can theoretically bring you. You should be able to cut down your present 4-coat system to three and still maintain the film thickness that you are presently achieving. By heating the lacquer as outlined, you can also cut down on atomizing air pressure (as much as one-half) and thereby obtain savings in overspray of 10% to 15%.

I wish to point out the importance, in all cases, of allowing as long a drying time as possible between coats. Piling one coat on top of another without sufficient drying time between only aggravates solvent entrapment. Your logical approach would be to provide a heated drying room well ventilated and maintained at temperatures of 100° to 130° F. If this is not practical there is no alternative but to allow sufficient drying time between coats.

I have seen in Europe some truly outstanding lacquer finishes. They always allowed at least one full day of drying between coats and the last coat was allowed to dry for two days before polishing.

The thousands of paint heaters that are now in use spraying hot lacquer proves, beyond a question of doubt, the fact that hot spraying lacquer can be made to work satisfac-

51 SERIES—HEAVY DUTY

WALCO COATERS & Glue Spreaders . . .

Moderately priced heavy-duty and Bench Type —for applying lacpuers, varnish, oil, plastics to metal, Plywood-Hardboard and many other flat surfaces—Available in lengths from 8" to 72". Two single models, and two for coating one or both sides. Grooved rolls available for adhesives. Also laminators, impregnators, conveyors and ovens. Prices start at $425.00.

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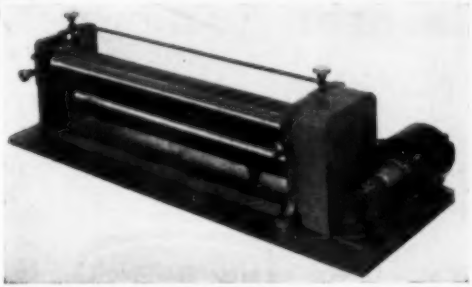

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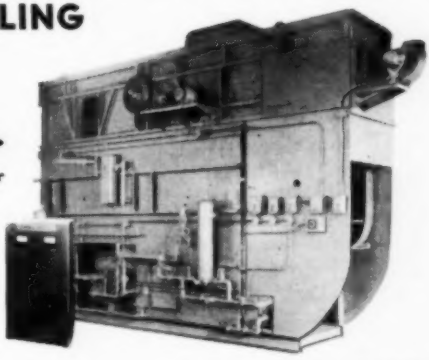

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torily. However, the paint manufacturer is an important key to the success of this process. Our experience has been that there are many paint manufacturers capable of supplying lacquers that are formulated expressively for hot spray; they will perform to your complete satisfaction.—*Bede International Development Co., James A. Bede, President.*

I have taken up this matter with a research chemist and a paint chemist. Everyone is agreed that your problem is one of shrinkage. *The only solution to this is to allow more drying time between coats, and especially after the final coat before rubbing.*

Some of the solvents used in hot lacquer are slower than those used in cold lacquer. You are applying 38% solids lacquer, which means that you are applying between 40% and 44% solids on the surface, depending on the position of the gun, plus the slower solvents. What is happening is that you are rubbing a surface that contains perhaps as much as 15% of solvents. Then, when these solvents are evaporated by further drying (after rubbing), the film shrinks. The answer to your problem is that you must allow more drying time.

It is estimated that about 1½ hours in a force dry oven is equal to overnight drying, if the oven is held at 135° F. with about 30% relative humidity. Some firms use force drying and then store the pieces in a drying room overnight. The drying room is held at 100° to 110° F., with 20% relative humidity—and air is circulated and exhausted. Just how long you will have to dry between coats and after the second coat before rubbing will have to be determined by experiment. Without force drying (using just work room temperature) you could start with say 48 hours drying time between coats and 72

hours after the second coat. Then, after inspecting the results, either lengthen or shorten the drying time.

You get little if any shrinkage in using cold lacquer because the lacquer contains faster evaporating solvents and less solids; and apparently you are allowing sufficient drying time between coats and after the final coat before rubbing, to evaporate practically all of the solvents. Therefore you get no shrinkage after rubbing.

It is impossible to apply two coats of hot lacquer to get the build you desire, instead of four coats of cold lacquer, and still maintain the same drying time for both types of lacquer.

You might consult with your supplier of lacquer and conduct some experiments on test panels, using a lower solids lacquer with faster solvents. As a result, you might be able to reduce drying time somewhat and still get the type of finish you want. —*P. C. Bardin, Associate Editor.*

How to Finish Teakwood Paneling

We are in the process of manufacturing a very beautiful teakwood paneling bank job, and would like to have your advice as to the proper finish to use over this oily wood.—*C. & C. Co.*

Teak wood appears in our local (San Francisco) jobs quite often, with the result that our finishers have finished it many times. I have checked with one of the "old timers" just to refresh my memory.

The first step is to wash the surface so as to remove as much of the natural oil as possible. This washing can be done with denatured alcohol or toluol. If you use lacquer thinner, about the only ingredient that is ef-

you can tell

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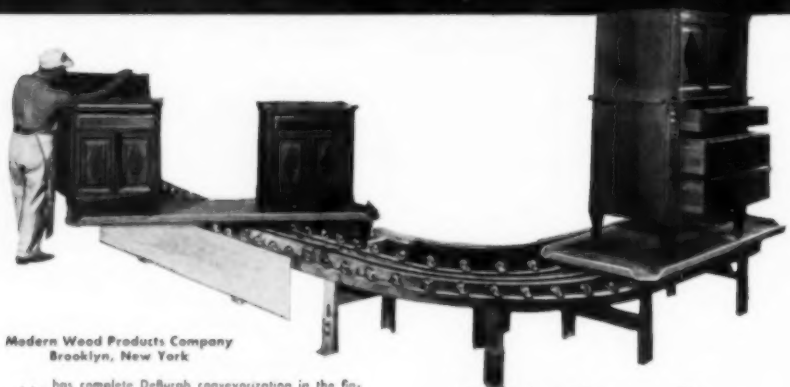

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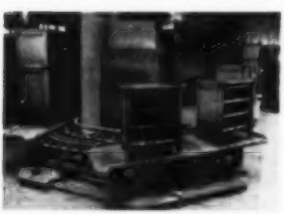

Convenient take-up adjustments are provided and conveyor speed is easily varied.

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Good Example

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fective is the alcohol in the thinner.

After the surface is dry, apply at least four coats of white shellac. Rub and smooth the surface with steel wool (sandpaper will clog with shellac). Then oil rub and finish with a hard wax polish. The reason for the final wax polish is because shellac is not too resistant to moisture; the wax will protect the film and also give the finish its desired luster.

If it is necessary to stain the wood —and it probably will be because teak is not necessarily a dark color— use non-grain-raising stains. Thus you will have a completely alcohol soluble system. Filling is not desirable because you may have trouble with adhesion.

Make the first shellac coat very thin so as to get plenty of penetration. The remaining coats should be normal spraying body—about equal parts of shellac and alcohol. The critical part is to wash well before you start to stain and finish.

It is quite possible that your regular paint supplier will have a recommendation, such as one of the newer synthetics, but the problem will be the first coat (not the stain) which will be, in effect, a barrier coat between the oily wood and the top coats. This barrier must provide "tooth" as well as to "block off" the effects of the wood. Unless you have some well authenticated experience behind such a recommendation, my suggestion would be to use the shellac system which I have detailed here. —*C. R. Brown.*

Can it be assumed that the teak will be finished by spraying? With the fast drying spray-type materials, this wood presents no more problems than many other woods. The prime requisites are patience and good materials.

A good procedure to use on woods of this type is to apply a thin coat of shellac (cut 1-lb. to a gallon) after the base stain is dry. Spray the shellac directly on the wood if no stain is used. Then follow with regular finishing procedures.

Wet spots may appear during the drying periods. These spots have no effect on color and do not seem to lessen the adhesive quality of the films. The only thing that must be different from ordinary is the drying times, which must be such that these wet spots disappear before the next step in finishing is begun.—*Hal.*

Metallized Finish for Reed Baskets and . . . .

We are interested in a metallized finish for wood (much like an electroplated finish) to use on decorative items such as pine cones, reed baskets, etc. Any information you can furnish will be appreciated.—*M.F.Co.*

The method of coating some of the items such as pine cones will depend somewhat on what the items will be used for. If they will be used in the home as a table or mantel decoration, to be viewed at close range, then they should be spray finished. On the other hand, if they are to be used only as a temporary decoration, no to be handled, and viewed only from a distance, such as a hanging or high shelf store decoration, or for use in a show window, then perhaps they could be dip finished.

You might experiment by dipping a number of the cones in a thin lacquer, not over 10% solids, in which metallic bronze powder in gold, silver or copper is mixed. The material in the dip tank must be continuously agitated to prevent the metallic powder from settling. Immediately after removing the cones from the lacquer, allow a few seconds for draining, then reverse the cones so that the

stem will be at the bottom. If the lacquer is thin enough the small amount of material that remains in the close places at the base of the cone is negligible. Cones may be dipped in multiple by fastening them on a plywood panel of suitable size to hold six, or 12 or possibly 25 cones.

Reed baskets and similar items should be spray finished. If the reed has a high gloss surface, such as is found on rattan, this gloss must be removed by light sandblasting with a very fine sand before any finish coats are applied; otherwise the finish will not adhere to the surface. If the surface of the reed or any other items you plan to finish is more or less porous, it will be necessary to spray a sealer coat first. Then, after this is dry, spray the metallic finish. For the pine cones, it should not be necessary to seal the surfaces first, as these cones have a hard, semi-gloss surface in their natural state.

Contact your supplier of finishing material; he can give you good advice, as well as formulate materials suitable to produce the finish you desire.—*J. R.*

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Imprint Gold Borders on Leather Tops

I have a small finishing shop. Could you tell me if there is a place on the West Coast where they imprint gold borders around leather top tables? I have had bad luck on one table; the gold lifted. There is no place in Portland, Oregon, that does that type of work.—*R. W. G., Portland, Oregon.*

In San Francisco, there is a firm that does this work. It is the Sto-Rex Craft Division of Western Mfg. Co., Inc., 149 Ninth St., San Francisco 3, Calif., attention Mr. W. C. Storek, Jr. We have been told that this kind of work is done by very few concerns, other than the large furniture manufacturers. They, of course, have a production problem and would be set up for it. However, the small custom shops have a relatively small demand and would not be justified in setting up for just occasional jobs of this kind. We were also told that aside from Storek, there is no one else on the West Coast who does this work.

Just a few comments that may be of interest. First, these decorative borders can be in gold, silver or certain other colors. There is a fairly wide choice of designs, both in straight lines and also in repeating patterns such as scrolls, etc. Also, certain conventional devices like anchors, fleur-de-lis, etc., are available. It also develops that the leather can be decorated either before or after being glued to the table top. In a new job you would only have to send the leather down, but in a refinish job you would probably have to send the complete top. We are told that the design would withstand shipping, but with this added word of caution: Have the leather cut exactly to size and do not trim to fit after the design is applied. This is to insure perfect margins, I presume.

In case you are interested in the actual process, the gold, silver or other color comes in ribbons of varying widths. This is laid on the leather and a heated embossing roller is run over the ribbon and pressed down firmly. The movement over the leather is rather slow. The corners are applied with quarter round dies with the same pattern. Then the ribbon is peeled from the leather, leaving the design on the leather. Incidentally, the unused parts of the ribbon are carefully saved and reclaimed, inasmuch as the gold is at least 24K. —*C. R. Brown.*

Vinyl Barrier Lacquer L-1144

Lacquered surfaces sometimes soften and erode if they are in contact with a vinyl coating or fabric. This may occur on upholstered furniture when a vinyl plastic cushion or arm rest contacts a lacquered wood or metal surface. The technical reason for this is the migration of the plasticizer from the vinyl into the lacquer film. This plasticizer dissolves the film the same as lacquer thinner. To prevent migration, it is necessary to provide a film resistant to the solvent action of the plasticizer in the vinyl product.

Vinyl Barrier Lacquer L-1144, a new formula from the Gilbert Spruance Co., Richmond & Tioga Sts., Philadelphia, Pa. acts as a suitable barrier. Also it can be used as the top coat over conventional lacquer.

This material is a clear gloss, water white formulation with good adhesion to most lacquers and sealers, and it will rub and polish satisfactorily.

Safety Outside The Plant

The national Safety Council hit the nail squarely on the head when they said, "A worker injured off the job is just as absent from work as one who has been hurt at his machine."

Why not extend your safety program to include the dangers on the streets and highways, cluttered up stairs at home, shaky ladders, worn out wrenches or pliers and the hammer that didn't hit the nail head. It might be well to remember that the worker spends three times as much time away from the plant as he does on his job.

Flamboyant Finishes; How to Use Them

RADIANT OR FLAMBOYANT are the most commonly used names for a finish that is presently enjoying a degree of popularity, particularly as a finish for bicycles. You might say that it belongs to a class of coatings that have a third dimension, in addition to those of color and gloss. Others of this type are the wrinkles, hammers, textured vinyls, metallics and multi-colors. The third dimension of the flamboyant finish is depth or the illusion of polished metal. The type of finish just mentioned is certainly not new, but the later versions are much more brilliant than the former ones. This brilliance is a quality of the aluminum undercoat, which is formulated from leafing aluminum in a couramone-indene type of vehicle. This vehicle permits the aluminum to be applied at such a low viscosity that it literally plates itself on the metal, developing a mirror-like luster.

The illusion of depth is created by the top coating, which is translucent. This translucent effect is obtained by using dyes and pigments of low opacity. Colors are somewhat limited, the most suitable being the various shades of red, green and blue.

For this radiant effect, a minimum of two coats is required. Some manufacturers have hounded paint salesmen to try to come up with a single coat version, but it simply cannot be done. The entire effect is dependent upon laying down two, dis-

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tinct and separate layers. In fact, the slightest bleeding or leafing of the aluminum undercoat into the top coat, or the slightest contamination of the transparent coat with aluminum, will ruin and muddy the effect completely. The aluminum can be applied by dipping or by spraying. It should be well agitated, since the pigment has a tendency to float and to settle, too. While some individuals recommend reduction to a certain viscosity (for instance 16 seconds on a No. 2 Zahn cup), this can be misleading because at such low viscosities you are approaching the thinness of the solvents themselves. A better method is to obtain the maker's recommendations for the addition of a certain amount of solvent.

The aluminum practically applies itself, but care should be exercised to apply only enough for coverage. A spare coating may allow the metal to show through, but too much thickness of coating will make it dull—and you have the risk of flotation into the color-coat. It sets to touch rapidly. While it will air dry, you will find it much safer to bake this coating. In fact, a flash-bake of over 400° F. will greatly increase the brilliance of the coating. Otherwise, 20 to 30 minutes at 300° F. will suffice to cure the resin.

With an opaque material, once opacity is reached, no amount of excess will alter the color. This is not true of these translucent topcoats; any variation of film thickness will show up as paler or darker. So, it is evident that the important factor with a flamboyant coating is uniformity. And because a fairly heavy top coat contributes to the illusion of depth, it is better to use one that is fairly weak in color, building it to the depth desired. Hard-to-reach areas should be hit first, then the entire area should be coated to the desired shade. Color standards must be constantly checked, for a drift away from the right color is very easy.

The beauty of flamboyant colors also depends on a completely smooth surface. The presence of any dirt, sags or orange-peel will make it just another common paint.—*C. G.*

R. C. Mahon To Build Los Angeles Plant

The R. C. Mahon Co., in a western expansion move, has acquired through an exchange of stock, three affiliated California corporations, Walter G. Mitchell Industries, Mitchell Steel Inc., and Mitchell Properties Inc., Torrance, Calif., and will merge operations of the firms with those of Mahon in a new plant.

Walter F. Sheetz, Mahon president, announced that the new plant will be built on a 30 acre site in Torrance which is about 12 miles south of Los Angeles. Construction will start immediately and will include a two story office and engineering unit, and a 200,000 square foot factory building. The investment will be about $3.5 million.

The Mitchell enterprises are associated with the building and construction industry in the west, and Walter G. Mitchell as executive vice president of the western division, will continue operations in his present location until the new plant is ready early this fall.

R. C. Mahon distributes on a national scale, maintains sales and engineering offices in Detroit, New York and Chicago, and has over 100 representatives in the U. S., Puerto Rico and Hawaii.

Bulletin Describes New Electronic Air Cleaner

A 16-page bulletin which describes Model B Rollotron electronic air cleaner is available from the American Air Filter Co., Inc., Louisville 8, Ky. Included are details of operation and electronic principle, an explanation of the agglomerator and storage sections, equipment drawings, capacity and dimension tables, specifications, a list of typical installations and a graphic description of the horizontal version of the Rollotron. A copy will be sent free upon request.

Solvent Loss is Important Factor

In the application of paint by dipping or flow coating the trend is toward higher solids materials. Solvent loss is an important cost factor in every dipping and flow coating operation. It behooves every manufacturer to make an intensive study, first to determine the volume of solvent that is lost, second, the cause of the excessive loss, and third, how to reduce the loss.

The first is easy to determine. Just record the amount of solvent that is added to the dip or flow coat tank over a certain period of time in order to maintain a given viscosity of the paint.

The second, determining if the solvent loss is excessive is not so easy for each case may have peculiar conditions which contribute to a greater or less loss. First of all it should be remembered that the actual coating of the product itself does not contribute to the loss of solvent. The dip tank or flow coater could be operated for say eight hours without coating any parts, and if the pre-established viscosity of the paint is maintained, the amount of solvent added would remain the same as if parts were coated for the same period of time.

In the case of a dip tank, even assuming that it is a modern tank where the paint is constantly circulated and heated, it would be impossible to give an example of excessive solvent loss because of the wide variation in the size

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of tanks the area of paint exposed to the air, the type and location of the exhaust. However in a low pressure flow coat operation for example if the machine has a 250 gallon tank and the solvent loss exceeds 25 gallons in an eight hour day, the solvent loss may be considered to be excessive. Those of you who are operating a dip tank and who may be able to secure data on a low pressure flow coat machine may be able to compare the volume of paint exposed to the air in each case and the exhaust, if any, and thus determine if the solvent loss in the dip tank is normal or excessive.

The third, how to reduce the solvent loss is also not easy. First a study of the equipment is in order; this is especially true of the dip tank; the volume of air that is exhausted; whether or not the dip tank is fully enclosed with only conveyor openings; where the exhaust duct or ducts are located. A capable finishing engineer may be able to advise changes in the equipment if the solvent loss is excessive.

It may be possible to use a higher viscosity paint, say 40 seconds at 78° F., as measured in a No. 2 Zahn cup, an epoxy ester base material up to 58% solids. Less solvent would be required.

It may be possible to change to a solvent having a low vapor pressure rating and high solvency, one that has a high boiling range, but not higher than the temperature at which the finish will be cured or baked. Of course this is a matter which must be left to the paint supplier.

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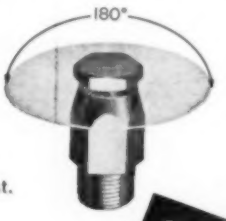

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Linings (Coatings) For Steel Containers

PIGMENT dispersions which are used in paints, printing inks and plastics must be protected in shipment and storage to maintain their value, performance and color. Certain manufacturers have been able to achieve this by putting into effect engineered precautions against contact of the pigment dispersions with deteriorating agents.

By using containers of exact specifications it is possible to maintain rigid product standards between the time these specialized industrial materials are produced and then used in a customer's plant. The steel drums in which these materials are shipped and stored require a lining film to prevent contact of the metal with the contents.

There are various types of lining materials for steel containers.

These tested lining materials are used for the shipment of thousands of different chemicals by providing a baked, impervious film on the inside surface of the sheet steel containers.

Container lining materials are used extensively in steel pails and drums for shipping chemicals, animal and vegetable oils, fatty acids, foods, paint products, solvents, and many miscellaneous materials.

It might seem that pigment dispersions would not be affected by contact with steel. But, that is not the case. The various types of binders and possibly other components used, are reactive with steel in varying

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degrees. Prolonged contact would impair the pigment dispersions in such ways as loss of gloss, discoloration, and even flakes resulting from the reaction.

The protective properties of drum linings depend, to a great extent, on many other factors beyond the control of the manufacturer of coating materials. These factors can be controlled only by the drum manufacturer.

As a manufacturer of lined drums for shipment of pigment dispersions, Jones & Laughlin Steel Corp's. Container Division maintains close control of lined drum and pail specifications with its supplier's own clear phenolic lining material. These specifications require uniform and flawless baked films of the right thickness that are continuous over the welded and mechanically-formed joints in the sheet steel.

Such requirements are met by modern automatic machinery, and by automatic instrument controls of lining application and of the temperature and timing of the baking process. A 5-step surface preparation after drum components are formed assures these results with application processes in large-scale production.

Manufacturers of drum lining materials (coatings) have a continuing program to aid in the selection and proving of stable coating materials for new products of many industries.

In several instances laboratory tests in steel test cups have shown the suitability of a coating material at the end of 90 days. Although in nearly every instance, a lining that is good after this test period has proved to have indefinite lasting qualities, this test is continued and preliminary field trials are recommended with a few drums or pails to verify the laboratory tests under actual conditions of production and use environment.

There is no such thing as a universal lining. The choice of lining for each product is specific. However, with an approved lining properly applied, the manufacturer can be assured that his product will reach the customer without impairment of quality.—*J. & L. Steel Corp.*

New Coated Abrasives Booklet

Up to 200% longer life, two to four times greater particle density, and more efficient cutting because the sharpest edges of the abrasive particle sare always exposed—these are features of new coated abrasive discs introduced by Abrasives Co. of America, 492 Main St., Fort Lee, N. J. The discs, available for all metals and woods, are produced by a patented process known as "Magnecoating". A new 4-page folder reveals more detailed information about this abrasive.

A pigment dispersion, after final processing, is poured into a 55-gallon lined steel drum at the Color & Chemicals Division Plant of Interchemical Corp., Bound Brook, N. J. Interchemical's clear phenolic lining material, baked on the inside surfaces of these open-head drums by Jones & Laughlin Steel Corp.'s Container Division, protects many of Interchemical's products against impairment by reaction with the steel.

Magnesium Finishing

The finishing of magnesium can be considered a specialty item in the finishing industry. Quite probably only a smaller segment of the industry has ever been connected or involved in coating this light durable metal. This does not mean however, that the wide expansion of production of magnesium in recent years will not bring most finishers face to face with it sometime in the possibly not to distant future.

To finish magnesium one must understand that it is the lightest metal available to man. As is characteristic of all light metals, the chemical reactivity is an active one. This factor produces many of the problems in finishing magnesium.

In finishing steel castings particularly in such industries as gages and thermometers etc., it is normally the accepted procedure to sand blast the steel and then prime and topcoat the casting with the desired lacquer or enamel. The unwary finisher who attempts this procedure on magnesium would probably find that an early coating and corrosion failure would arise to plague and harass him.

Magnesium because of its reactivity is extremely sentitive to all forms of contamination. An operation such as sand or grit blasting imbeds fine particles in the surface of the metal itself. Where moisture may be present particularly, it is usually found that galvanic corrosion proceeds at a rapid pace and destroys the adhesion between

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the organic coating and the magnesium substrate. Thus a sandblasting alone is not an acceptable prefinishing operation. In the case of magnesium it is essential that a suitable acid dip treatment is performed to neutralize the sources of contamination and impurities.

Machining and forming operations as part of the fabrication operation have a pronounced tendency to impart contamination with organic or sulfurized cutting oils or with foreign metal particles. Fluxes from certain welding operations or traces of copper from welding electrodes will all tend to contribute to the formation of undesirable corrosion pockets which will develop failures in the organic coating system.

Actually then, while formulations designed for use on magnesium should be used exclusively, it is usually not the quality of the paint product which fails. In all forms of finishing the pretreatments and cleaning are an important aspect of the system as a whole, but in the finishing of magnesium this takes on an even greater importance.

Cleaning and acid treatments are required to neutralize the naturally occurring alkalinity on the surface of magnesium. This in conjunction with the removal of possible contaminent sources of corrosion must receive the highest priority in the finishing procedure.

If the finisher is able to recognize that extreme emphasis and specialized prefinishing steps are essential, he is bound to eliminate or prevent most of the stumbling blocks in the finishing of magnesium—*G. Gaynes*

Additive Stops Deleafing Of Aluminum Pigments In Paint

Industrial use of alkyd base aluminum paints on an expanded scale should become more feasible through a new additive that eliminates the deleafing of aluminum pigments in alkyd and high-acid varnish vehicles.

Industrial use of such paints has been somewhat hindered in the past because aluminum's sought after leafing action was destroyed by high-acid vehicles. The paints had to be job mixed because of short pot life.

Called Alcoa Stabilizer No. 5, the additive makes possible ready mixed formulations with acid values up to 28, with long storage life assured.

A clear, amber liquid, the stabilizer will be manufactured by Alcoa and sold through their sales offices and distributors. Complete information may be had from Paint Finishes Division, Alcoa Research Laboratories, New Kensington, Pa.

Gold Dye For Iridite

Allied Research Products, Inc., manufacturer of chromate conversion coatings and related processes and equipment, announces the development of a new gold dye for use over a clear Iridite film.

Designated as Iridite Dye GO-1, the new process has been found applicable to such zinc plated products as refrigerator shelves, wire goods, tubing and other items in the furniture, appliance and hardware fields.

It is applied by a simple 15 to 30 seconds immersion in the dye solution which operates at between 70° to 90°F.

For more information, write Allied Research Products, Inc., 4004 E. Mounment St., Baltimore 5, Md.

Torit Mfg. Names Bennett Regional Sales Manager

Richard Bennett has been named regional sales manager for the Chicago area for Torit Mfg. Co. He will supervise sales activity for industrial dust collectors and associated equipment in Chicago and surrounding areas.

The E. A. Davenport organization, 1559 W. 83rd St., Chicago, will continue as manufacturers' representatives for Torit whose headquarters are in St. Paul.

Epoxy Coatings

Among the newer type coatings in the industrial finishing industry, the epoxies have received a rather large acceptance. Unfortunately though, in their haste to obtain the benefits of this latest technological advance some factors are overlooked by the finishers and hence the advantages are lost.

The foremost factor upon which the success or failure of epoxies depends is the cure. In this, other than some slight modifications in the formulation in the laboratory, the finisher himself is the sole major controlling factor.

For airdrying purposes it is necessary to add a catalyst or converter which enters into a reaction with the resin at room temperature to form an insoluble completely reacted polymer. From a chemical standpoint these cannot be called catalysts as they are a reacting component but because the term is in widespread general use, for the benefit of clarity we will continue to refer to the word "catalyst" as the curing agent.

It is well known that for an air drying epoxy a two package system is necessary, that is, the coating and the catalyst are shipped in two separate containers and are mixed together only prior to use. The pot life of the combined mixture is limited and as a result there is usually a rush by the finisher to use up the complete mixture in as short a period as possible lest some expensive coating materials go to waste. Not only is the material wasted but clean-

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ing the pot of a sticky mess is not the most desirable of chores. Thus in his haste to prevent a costly loss of material and labor, the finisher frequently overlooks an important factor upon which the whole epoxy air dry curing system is dependent.

The curing of epoxies as we have stated previously is one of a chemical reaction between epoxy and converter. This reaction is not an immediate one. Quite probably if an immediate reaction did occur there would be a considerable evolution of heat and possible danger of explosion. Therefore it is to everyone's best interest that the epoxy-catalyst reaction proceed in a normal slow conventional manner.

Use of the epoxy mixture immediately upon combination of the reactants only serves to place a partially reacted coating upon the substrate. The evaporation of the solvents will only leave an uncured film which in the final analysis is as great a loss as wasted material in the pot.

Mixing of epoxy and catalyst requires a "sweating in" or gestation period of approximately one hour. Cheating or shading that period does not fool the material, only the finisher, who blithely goes about his business thinking that he is accomplishing a shrewd maneuver. The chances are, as has happened many times before particularly in aircraft finishing, when the supposedly cured film is in contact with active chemicals and solvents, it will fail completely.

In general as a class, epoxy paints will provide a combination of chemical resistance, adhesion and flexibility unequaled by any other finishing product, Of course in each of the three individual properties epoxies can be exceeded but as a combination they are without peer. This, however, is only true if fully cured films are obtained.

The finisher is usually paying a premium price for an epoxy coating. It is done so that the special desirable properties can be obtained. Failure, however, to properly "sweat in" the catalyst merely dooms the finish to an unsatisfactory uncured or partially cured film. There is no need to spend the extra premium when many more inexpensive finishes will equal the results of improperly cured epoxy paints. However, if the premium price is being paid, the finisher should see that he attains the premium results.—*Norman I. Gaynes.*

Personnel Changes at Metal & Thermit Corp.

The appointment of F. L. Scott as technical manager of the organic coatings division, Metal & Thermit Corp. is announced. He will reside in Scotch Plains, New Jersey.

Donald R. Meserve has been made sales manager of the organic coatings division. Mr. Meserve has been with the company for seventeen years in research and development, technical service, production and sales.

Dr. R. M. Kary has been appointed member of the research staff of Metal & Thermit. Dr. Kary, a native Austrian received his Ph.D in organic chemistry from the University of Vienna. He is a member of the American Chemical Society, the Metropolitan Michrochemical Society, and the Scientific Research Society of America.

Compound Keeps Water Wash Spray Booths Clean

Case history reports on Mogul M-55 a cleaner that has been effectively used in keeping water wash paint spray booths in almost constant operating condition has been compiled by the North American Mogul Products Co., Standard Bldg., Cleveland 3, Ohio.

The report shows that the product not only prevented rust and clogging of strainers, lines and nozzles, but reduced required cleanout from four times to once a month and increased paint recovery. It is non-toxic. For a copy of the report, write the manufacturer.

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Prillaman Drawer-Glide Waxes penetrate deep into pores of the wood, thereby giving the drawers dimensional stability, a moisture-proof coating and lubricating the surfaces for easy sliding. They also beautify the wood and give surfaces a smooth, waxy feel. Supplied in color or colorless to be applied by spray, brush, sponge or dipping.

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Metal Show Dates For 3 Years

Future dates for the several editions of the Metal Show are as follows:

1959

November 2-6, The 41st National Metal Exposition & Congress, International Ampitheatre, Chicago, Illinois.

1960

April 25-29, The 2nd Southwestern Metal Exposition & Congress, State Fair Park, Automobile Bldg., Dallas, Texas.

October 17-21, The 42nd National Metal Exposition & Congress, Trade and Convention Center, Philadelphia, Pa.

1961

March 20-24, The 13th Western Metal Exposition & Congress, Pan Pacific Auditorium, Los Angeles, Calif.

October 23-27, The 43rd National Metal Exposition & Congress, Convention & Exhibits Bldg., Detroit, Mich.

Further information is available from Chester L. Wells, Exposition Manager, American Society for Metals, 7301 Euclid Ave., Cleveland 3, Ohio.

Maas & Waldstein Honors Five Senior Salesmen

Five senior technical representatives with service totaling more than 133 years were honored at a special sales meeting. Each received a gift of silver winged victory bookends from Dr. Gustav Klinkenstein, president of Maas & Waldstein Co., Newark, N. J.

Those honored were Mr. Tom B. Haddow who at 81 is still active in the New York metropolitan area. He has had over 38 years service.

Mr. E. R. VanDerHoef who covers the territory between Newark and Trenton. He has been with the company for 32 years.

Mr. William Treadwell with 23 years of service is well known in Buffalo-Rochester area and in New England.

Mr. Alexander W. Keller, 20 years of service handles the Newark-New York area.

Mr. Ben Warren with 20 years service is also located in the New York metropolitan area.

The meeting was conducted by Don P. Volino eastern sales manager of the division.

Left to Right: A. W. Keller, T. B. Haddow, D. B. Volino, Dr. Klinkenstein, President, Mr. E. R. VanDerHoef, Wm. Treadwell and Ben Warren, are the five senior salesmen recently honored by Maas & Waldstein Co. of Newark, New Jersey.

Bee Chemical Co. Logo Divn. Expands on West Coast

The Logo Division of Bee Chemical Co., with headquarters in Chicago announces the establishment of expanded west coast operations. New quarters have been acquired at 17000 S. Western Ave., Gardena, Calif. for warehousing the firm's coatings and metallizing finishes. It will also house a new sales service laboratory for Los Angeles area customers.

The west coast operation will be under the direction of Milton T. Schimmel, who handled technical service and sales work for the company on the west coast for the last two years. The Los Angeles telephone number is DAvis 9,8343.

Binks Fills New Sales Jobs

Several new branch sales appointments are announced by Binks Mfg., Co., who produce spray painting equipment, industrial and commercial water cooling towers.

William Krusen is now a sales representative for the Kansas City territory. Thomas Frederick and Harry Boult have joined the Dallas branch.

In the east, Henry Glass has been appointed sales representative for the Philadelphia branch. The New Jersey area will be covered by Robert Muessig, who will make his base of operations in New York City. Home office of Binks Mfg. Co., is at 3122 Carroll Ave., Chicago 12, Ill.

Bintzler Joins DuBois Co.

Robert L. Bintzler has been appointed staff engineer by The DuBois Co., Inc., 1120 W. Front St., Cincinnati 3, Ohio manufacturer and distributor of chemical cleaning compounds.

Bintzler, a graduate of the University of Cincinnati, is a member of the American Society of Mechanical Engineers. He will do development and production work on tank cleaning devices, central lubrication engineering and technical problems in industrial washing.

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Brady Pre-Cut Masks are self-sticking — go on fast and accurately. Protect from finishing to inspection. Hundreds of shapes and sizes in stock, for paint spraying, baking, tumbling, etc. Specials made to order. Fast delivery. Distributors in 150 cities.

Write for free samples and Bulletin 160-C.

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Sundstrand Changes Name

The name of Sunstrand Machine Tool Co. was officially changed to Sundstrand Corp., by vote at the annual stockholders meeting on April 28.

In announcing the change, Bruce F. Olson, president, said, "Sunstrand's non-machine tool operations have been expanded to a point that the old corporate name no longer accurately reflects the diversification of the company's business."

Currently the company is building an addition to its Belvidere machine tool manufacturing plant. Sunstrand Corp. operates five divisions, aviation, machine tool, hydraulics, broach, and turbo. A subsidiary, Sundstrand International, handles export sales and service. Foreign affiliates include Sundstrand Hydraulic AB in Sweden and Societe Parisienne de Machines Outils in France.

Room-Temp Cleaner Cuts Heating Costs

Savings made possible by the cleaning of metals with Room-Temp cleaner, are described in a 4-page folder published by Oakite Products, Inc.

Designed for use in spray washing machines, the compound is used most frequently in the temperature range of 80 to 100°F. At such temperatures, washing solutions require less heating, and there is less heat loss through absorption by the metal being processed. Other advantages are long solution life, rust retardant between operations, and it is safe to use on steel, aluminum, copper, brass and zinc and their alloys.

Folder F10596 is available from Oakite Products, Inc., 132F Rector St., New York 6, N. Y.

"Scanlac", A New Clear Finish

A new finish developed by The Gilbert Spruance Co., will resist stains, alcohol and solvents, and it has good color retention.

It is suited for use on institutional, school furniture, hotel furniture and floor finishes, all of which involve extremely hard use. Presently available as a water white, clear, high solids materials for application by cold or hot spray techniques, it comes in various sheens.

The address is The Gilbert Spruance Co., Richmond & Tioga Sts., Philadelphia 34, Pa.

Now A Germ Retardant Paint

The Monroe Sander Corp., 10-18 46th Ave., Long Island City 1, N. Y. manufacturer of Sanco industrial finishes, will use an additive in their finishes called "Sanitized" which retards development of germs, fungi, mold, mildew and odors.

The additive will be included in paints used for canisters, toys, juvenile furniture, wardrobes, steel drums and containers, refrigerators, mixers, kitchen cabinets, washing machines and dryers, picnic jugs and similar equipment.

Mahon Elects Three V. P. Of New Western Division

The board of directors of The R. C. Mahon Co. in Detroit, elected Walter G. Mitchell executive vice president of the newly formed western division, Torrance, Calif., D. L. Buttrey, vice president of manufacturing and Walter E. Willard, vice president in charge of the structural steel division.

Willard and Buttrey were formerly general managers of their respective divisions.

Oronite's Technical Consultants

Oronite Chemical Co. has announced the retention of David Litter Laboratories, New York, as technical consultants in the application of Oronite's chemical raw material, Isophthalic, in surface coatings.

David Litter will devote most of its activities to the uses of Isophthalic-based resins in such products as varnishes, alkyd-based paints, alkyd emulsions and industrial finishes. Its development work on Isophthalic applications will supplement the basic research program conducted by Oronite and California Research Corp., according to T. G. Hughes, Oronite president.

Testing Instrument Catalog

A 4-page, 8½x11 catalog No. 358 illustrates new models of pneumatic and electric controllers, self operating regulators, temperature and pressure recorders, industrial and laboratory thermometers, mercury and vapor dial thermometers. Also included are manometers, viscosimeters, psychrometers, precision dial test gauges and oxidation testing apparatus. For a copy, write Scientific Instrument Co., 1041 Second Ave., Detroit 26, Mich.

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● SUPPLIES
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Roller Coater Coats Both Sides Twice In Single Pass

A roller coater that coats top and bottom surfaces of wood or metal twice in a single pass has been introduced by Union Tool Corp., Warsaw, Ind.

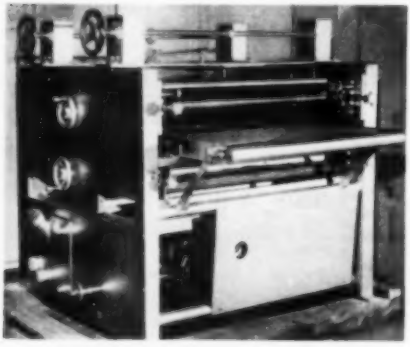
Known as the Two Stage Twin roller coater, this unit solves the problem of applying varying amounts of enamel, varnish, glue, wax or other coating materials to the same surface.

Two double coating assemblies are located on 18-in. centers. Flat stock is fed into the unit by conveyor and a second conveyor moves it from the first coating section to the second. Variable speed drive controls the feed rate. A circulating pump regulates the amount of coating material to the crotches of the upper rolls and the feed pans on the lower rolls.

Handwheels move the doctor rolls toward and away from the coating rolls to assure fine adjustment of film thickness. The two front doctor rolls are equipped with micrometer-type hand knob adjustments for precision metering. Viscosity is controlled by means of an immersion heater in the supply tank which keeps the material at room temperature at all times.

The roller coater is available in 14-in. to 72-in. widths.

For more data, circle 1 on colored card.



Double coat to both sides at the same time.

Concentrated Colorants For Air Dry Coatings

A new line of concentrated colorants that can be used to tint interior or exterior types of emulsion paints, oil base paints, alkyd flats and enamels and other special air drying coatings have been developed by the Pittsburgh Plate Glass Co., Pittsburgh, Pa.

The fifteen colors to be marketed as Pittsburgh Universal Tinting Colors are said to be capable of producing virtually any color in any desired finish. They are not restricted to use with tinting bases.

Colors, which will be packaged in quart and half-pints, are chrome yellow, light and medium, Chinese red, phthalo chrome green, chrome orange, raw sienna, burnt sienna, raw umber, burnt umber, red oxide, lamp black, fast red, chrome oxide green, phthalo green and blue.

For more data, circle 2 on colored card.

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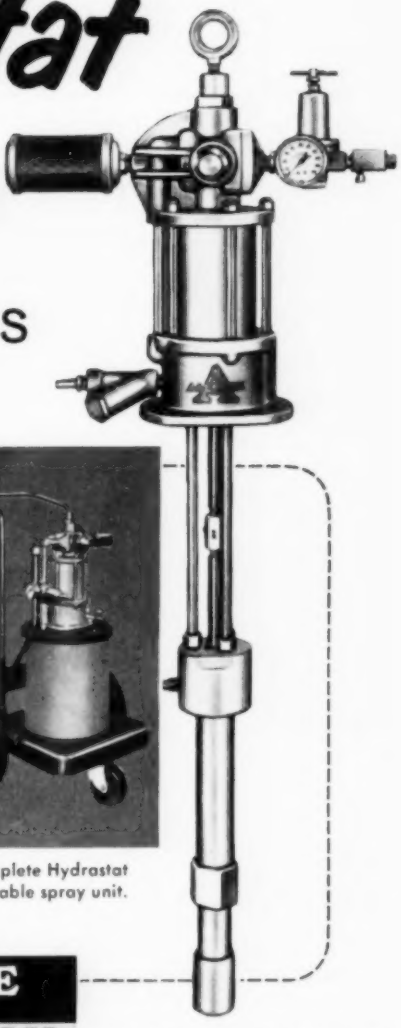
Hydrastat Pump

cuts paint costs up to 40%!



- Speeds production . . . minimizes housekeeping . . . increases safety . . . eliminates waste . . . saves up to 40% of material!
- Puts paint only where you want it! Atomizes paint by high pump pressure—without use of heat, without atomizing air!
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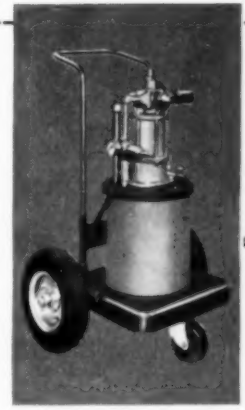

Complete Hydrastat portable spray unit.

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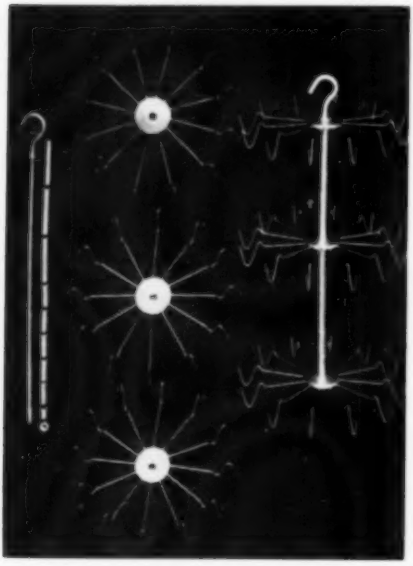
For more data, circle 202 on colored card.

Patented Painting Fixtures

Work Holders called Versitree are offered by W. E. Pipkorn Mfg., Inc., 2211 W. County Road D, St. Paul 12, Minn. These patented painting fixtures have a weight holding capacity of 3-lbs. Staff assemblies are made in 12, 18, 24 and 30-in. lengths, with ½, 1 and 2-in. spacers to permit variable spacing of spiders on the staff.



Permits painting 12 to 36 parts at a time.

Fixture stands erect on its own base for fast loading and knocks down easily for stripping, storage or changeover.

For more data, circle 3 on colored card.

Cleans Finishing Equipment

Do you operate finishing equipment such as automatic spray machines, paint heaters and multi-station systems? The DeVilbiss Co., has developed large capacity equipment for flushing and cleaning out the paint passages and hose lines.

The new units are available in two, five, ten and 15-gallon sizes and will clean hose, heater coils and flush spray guns in a single operation. A minimum amount of solvent is used and the operation is fast and efficient.

The cleaners consist of a pressure feed tank shell, lid assembly, safety valve, and a triple action cleaner and air mixer assembly. The mixer assembly has two metering valves, one for air and one for the cleaning solution. The cleaner tanks are designed for a maximum working air pressure of 110-p.s.i.

Detailed information can be obtained from The DeVilbiss Co., Toledo 1, Ohio.

For more data, circle 4 on colored card.

New Protective Coating Offers Several Desirable Features

A new type of protective coating, based on the reaction of a specially-blocked isocyanate and an amine-bearing resin in an aqueous solution, has been developed by Mobay Chemical Co., Pittsburgh 34, Penna. Preliminary tests at Mobay's laboratories indicate a strong potential for the new system as an easy-to-apply primer coating for the automotive, appliance and industrial enamel markets.

Among the merits claimed for the new one-component system are: 1) a high order of chemical resistance, 2) excellent adhesion to metals, 3) excellent flexibility, 4) ease of formulation and application, 5) non-toxic properties, 6) non-inflammability and 7) reduced cost.

In formulation, the blocked isocyanate is used in a concentrate of polyamide resin and an emulsifier. Water is added and the composition

is then blended by agitation. Colors are achieved by merely adding pigment to the concentrate or emulsion during agitation.

In this new technique, the reaction of the blocked isocyanate with the polyamide resin at elevated temperatures results in a polyurea linkage, rather than in the more familiar polyurethane linkage which occurs when isocyanate is reacted with hydroxl-bearing resins.

Curing of the water-based coating is done at normal bake temperatures. The system may also be formulated by using low-cost solvents rather than an aqueous system; however, the use of water as the primary solvent reduces the raw material cost to a minimum. Finished cost is expected to be competitive with lower-cost corrosion-resistant systems of other types now on the market.

For more data, circle 5 on colored card.

Drum Holder for Lifting

The Grizzly No. 235 drum lifter is offered by Pucel Enterprises, Inc., 3746 Kelly Ave., Cleveland 14, Ohio.

For one man operation, it lifts vertically, stacks drums, open or closed, battered or lopsided, all with the same ease and positive safe grip. It can be attached and removed in seconds; may be used with fork lift trucks; moves 55 and 30 gallon drums.

For more data, circle 6 on colored card.

Electrostatic Hand Spray Gun

H. G. Fischer & Co., 9451 W. Belmont Ave., Franklin Park, Ill., has developed a super-charged electrostatic hand spray gun with all of the flexibility of a conventional paint spray gun and can be handled with complete safety. The high voltage dies out when the charged gun approaches a grounded object too closely. The paint, however, continues to be atomized when the safety feature cuts out the high voltage.

Gun weight 2¼-lbs.; standard connections.

The gun is well balanced, weighs 2¼-lbs. without cable and hose, and has standard spray gun connections. The degree of atomization is fully adjustable, and the spray pattern, flat cone in shape, is also adjustable.

The high voltage transformer plugs into a 110 volt line and requires only 200 watts. It provides power for two spray guns.

The equipment is sold outright to the customer.

For more data, circle 7 on colored card.

PROTECT LUNGS against PAINT SPRAY – DUST – FUMES

DUPOR No. 4 RESPIRATOR has big double filters for easy breathing and greatest filtration! Soft rubber face mask gives airtight fit. Patented DUPOR valves bring in clean air—throw off breathed air! Weight 4 oz. Economical! Costs only $2.00 postpaid. Order Now!

H. S. COVER, Dept. 610 South Bend 14, Ind.

For more data, circle 203 on colored card.

Protects Metal In Storage Against Corrosion

Development of a removable coating for in-shop protection of metallic and non-metallic surfaces during storage, forming and fabricating is available. The product, Turco Fabrifilm, is said to offer protection comparable to zinc chromate primer, without the difficulties of removal.

It is applied by spray and can be removed at the same time parts are being alkaline cleaned prior to final surface preparation. Cleaning efficiency and rinsability of immersion cleaning tanks are not adversely affected by the material.

Standard coating is blue, however, it can be dyed to any color code requirement.

Technical information is available from Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

For more data, circle 8 on colored card.

Automatic Gun Sprays Viscous Materials

The Eclipse Guk-Rod, a tough air operated automatic spray gun has been introduced. Designed for automatic production line use on sheet metal fabrication in automotive, appliance, heavy building materials, etc., it sprays heavy viscous materials such as sound deadener, underbody coating, asphaltum, fibrated materials and adhesives.

It has hardened moving parts such as fluid tip and plunger, and a special design carbide nozzle insert. The fluid hose connection is ¾-in. inside diameter. Moving parts are self aligning, and it will withstand fluid pressures over 500 p.s.i. The gun opens and closes by compressed air.

The manufacturer is Eclipse Air Brush Co., 400 Park Ave., Newark, New Jersey.

For more data, circle 9 on colored card.

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P. O. BOX 631 — TOCCOA, GEORGIA

For more data, circle 238 on colored card.

Strips Epoxy Coatings

Oakite Stripper S-A is especially designed for the removal of hard-to-strip coatings such as epoxy resins, acrylics, vinyls and polyesters.

The stripper has no flash point, and requires no heat. It can be safely used on steel, stainless steel, aluminum, copper and brass. It cannot be used on zinc nor magnesium. Best results are obtained in a tank system.

Oakite Products, Inc., 19 Rector St., New York 6, N. Y. will supply additional information.

For more data, circle 10 on colored card.

Afterdryer System Cleans Compressed Air

There is a new system for drying and cleaning air to be used in compressed air systems. The new "Mainliner" Afterdryer System has recently been placed on the market by the Wilkerson Corp., 1627 W. Gerard, Englewood, Colorado. The company has published a technical bulletin explaining the method and its merits.

In addition to taking out moisture from air lines, Wilkerson Mainliners can remove dirt particles as small as three microns and oil vapor a swell. Several types of Mainliner Systems are offered in order to meet varying

needs, such as removal of oil fumes, water and dirt, just water and dirt, or water only.

Since the Wilkerson Afterdryer System represents an entirely new concept of air drying and cleaning, persons interested should read the technical bulletin offered so that the application to their particular needs will be understood. The bulletin can be obtained by writing Wilkerson Corporation.

For more data, circle 11 on colored card.

Chart On Maintenance Coating Systems

The Carboline Co., has released a 4-page chart, Comparison of Maintenance Coating Systems, designed to aid engineers and maintenance personnel concerned with buying and specifying corrosion resistant maintenance coatings.

The chart compares 17 standard systems showing the strong and weak points of each. Accurate resistance ratings are listed for acid, alkali, solvent, water, weathering, flexibility, impact and abrasion and temperature conditions. Compatibility over old paint, surface preparation and general comments are included.

Copies of the chart No. 5 may be obtained from Carboline Co., 32 Hanley Industrial Court, Brentwood 17, Missouri.

For more data, circle 12 on colored card.

Detergent in Metal Cleaning

Metal cleaning in soak tanks is due to become a much more efficient process than ever before as a result of a new detergent just announced by Rohm & Haas Co., Washington Square, Philadelphia 5, Penna. Known as Triton QS-15, the new product now is available to detergent formulators in commercial quantities. According to the manufacturer, Triton QS-15 combines vigorous detergent action with solubility in relatively high concentrations of alkaline cleaners, while at the same time exhibiting chemical stability in strong caustic.

For more data, circle 13 on colored card.

Gold, Brass, Copper, Bronze Ready-Mixed High-Gloss Enamels

No. 900 ready-mixed spray high-gloss bake enamels in gold, brass, copper, bronze and aluminum are outstanding durable coatings. These coatings have a mirror-like gloss. Their gloss is higher than the gloss of the finishes applied by the old method of spraying a clear coat over a baked bronze powder base color and then rebaking. Liberal samples furnished if you specify color you are interested in. O'Neal Paint Products, Inc., 15115 Chatfield Ave., Cleveland 7, Ohio.

For more data, circle 14 on colored card.

RECOVER your Paint Overspray

• REPROCESSED in our plant to conform to its original specification, in both physical and chemical properties, paint waste overspray or sludge can be used again in regular production at considerable savings. Our more than 21 years' experience is customers' guarantee of satisfaction.

PRIMERS—WHITES—COLORS—

• Write for complete details!

Mixed color sludges can be converted to primers.

W. C. RICHARDS COMPANY 3108 W. Vermont St., Blue Island, Ill.

For more data, circle 204 on colored card.

Natural Finish in Oil for Wood Is Permanent, Non-Spotting

A new non-spotting natural finish for wood furniture and paneling has been developed by The Watco-Dennis Corp., 1640 20th St., Santa Monica, Calif. The new Watco Natural Finish, a highly balanced compound of oil and resins, makes possible fast, simple production for wood finishes of the flat, open grain, linseed oil and "Danish" types. Production technique is reduced to just two basic steps—saturation and drying. Water spots and stains, even minor burns, may be easily buffed off a Watco finished wood unit, thus eliminating one of the major negatives of oil-treated or flat lacquer finishes.

Watco Natural Finish is a penetrating, permanent treatment. There is never a surface film to mar, scratch or wear away. All of the luster and natural beauty of oil-treated wood is maintained; and Watco will not gum-up in warm temperatures or crystallize.

The new Watco Finish achieves its qualities through complete penetration into the wood fibers where it polymerizes, that is, changes from a liquid state to a permanent, resilient solid. Easy to apply, and non-grain raising, this new natural finish is especially suited to walnut and other woods normally treated with linseed oil.

Production techniques to apply Watco need but two basic steps:

1) Liberal Watco application to wood unit, followed by removal of surplus.

2) Overnight drying followed by light buffing.

Any of the usual production application techniques—spraying, brushing, wiping, dipping or pressurizing —may be used. Any number of stains may be added to the finish to achieve various wood color-tone effects. The Watco finish will improve with usage and age. Initial sanding of the wood surface will determine the degree of luster desired.

For more data, circle 15 on colored card.

New Cup-Type Spray Gun

A new lightweight cup gun for spraying paints, enamels, lacquers, etc., is offered by Gray Co., Inc., 33 Graco Square, Minneapolis 13, Minnesota.

Product of Gray Co., Minneapolis 1, Minn.

This well-balanced Graco spray gun features a 2-piece, aluminum alloy body with a built-in air distributor for uniform air distribution and excellent pattern. No gaskets are required in tip or cap assembly; this removes any chance for leaking and it simplifies cleaning.

All fluid tips, as well as all male threads, are stainless steel to reduce wear and give long useful life.

For more data, circle 16 on colored card.

Conveyor Has Belt-On-Roller

A horizontal belt-on-roller conveyor which offers versatility and flexibility of application is offered by the Rapids-Standard Co., Inc., Grand Rapids 2, Mich.

Available in two series, units are designed to handle bags, boxes, cans, cartons, drums, etc. Series 904 is for light to medium duty and series 905 for medium to heavy duty.

Power driven belt has firm roller support.

The 904 series comes in three power drives, ½, ¾ and 1-hp capacities. Belt widths are 8-in. to 24-in. Series 905 power drives range up to 5-hp and belt widths from 12-in. through 48-in. in 6-in. increments.

For more data, circle 17 on colored card.

Aluminum Paint Resists Heat

Greater adhesion, increased brightness and longer life are claimed for Heat-Rem H-170, an extra high heat resistant aluminum paint, as a result of recent improvements in its formulation. The manufacturer is Speco, Inc., 7308 Associate Ave., Cleveland 9, Ohio.

Non-leafing particles are equally distributed throughout the vehicle. This makes possible a "fusion" of the paint with hot metal surfaces and forms a protective coating capable of withstanding heat up to 1700°F.

For more data, circle 18 on colored card.

Devcon L, A Plastic-Lead Putty

A putty like lead material made up of 94% lead and 6% plastic that can be formed into any shape without heat or pressure has been developed by Devcon Corp., Danvers, Mass., the manufacturer of Plastic Steel. Called Devcon L, this material becomes a tough durable mass, very similar to lead itself, two hours after the addition of a special hardening agent. Once hardened, it can be drilled, sawed, or otherwise machined with regular tools.

Devcon L has high impact, compression, and tensile strengths. It exhibits excellent resistance against most solvents, acids, and other chemicals. It bonds lead, steel, aluminum, bronze, brass, wood, iron, porcelain, and many other materials to themselves or each other. It contains no volatile solvents and is, therefore, non-shrinking and non-inflammable.

For more data, circle 19 on colored card.

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LEA SYNSTRIP . . . a fast working, non-corroding liquid enamel, lacquer and synthetic coating stripper. Will not attack aluminum, zinc or any other base metal or alloy; does not dissolve the coating but breaks the bond. When heated to temperatures of 160° to 200° F., stripping synthetic coating of the alkyd, epoxy, phenolic, silicone and urea type, is accomplished in a matter of seconds.

— and —

LEA COLDSTRIP . . . high speed stripper used at room temperature; only minimum ventilation; can be filtered for continued use.

The LEA Manufacturing Co.

16 Cherry Avenue
Waterbury 20, Conn.

For more data, circle 205 on colored card.

Adjust Spray Pattern With One Hand

The Eclipse high-low Spray-Rod is a new precision hand spray gun that gives fine atomization and uniformity of spray. Designed for operator comfort, versatility and convenience, the new hand gun allows one-hand instant control of the spray pattern.

Change spray pattern quick, single handed.

Push button fan control on the gun gives the operator the kind of control that will save paint and reduce spray booth maintenance and clean-up. With a flick of the thumb or forefinger the fan control is instantly changed to either of two adjustable fan widths, with either internal or external atomization. For further details, write the Eclipse Air Brush Co., 400 Park Ave., Newark 7, New Jersey.

For more data, circle 20 on colored card.

Treatment For Rusty Surfaces

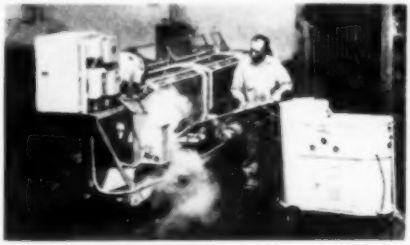
When applied on rusted surfaces, a metal treatment called Ospho stops rust action and, at the same time, prepares the metal for paint. Developed by Rusticide Products Co., 3125 Perkins Ave., Cleveland 14, O., Ospho changes rust (iron oxide) to iron phosphate. Paint subsequently applied adheres so tightly that moisture cannot penetrate through to the metal. Users report that paint jobs last much longer.

For more data, circle 21 on colored card.

Portable Steam-Jet Cleaner

The Speedysteam 100 jet cleaner is mounted on four rubber tired wheels and is a completely enclosed, compact machine with built-in soap tank and controls. It can be operated on kerosene or No. 1 or No. 2 fuel oil. Ignition is fully automatic and fuel pressure is modulated to develop the gun-nozzle pressure desired.

A water float tank with an anti-syphon valve assures uniform water flow and avoids danger of supply contamination, as required by law in some states.



Steam cleaner can be taken to the job.

The snap of a switch and the opening of only one valve produces cleaning pressures from 50 to 150-psi. in 90 seconds. Delivery at 100-gph. is accomplished with a rotary, valveless pump which eliminates pulsation and vibration.

The manufacturer is Steam Generator Division, Pantex Mfg., Corp., Pawtucket, R. I.

For more data, circle 22 on colored card.

Automatic Spray Painting

The accompanying picture shows a rotary table type automatic spray painting machine which paints around parts at the rate of over 2400 pieces per hour. The spray gun is mounted on a cam-controlled arm which also incorporates a spinning device to pick up the part and spin it in front of the gun. The gun sprays the part as it follows the part through an arc of its travel. The gun then indexes back and picks up the next part.

Paints 2400 pieces per hour automatically.

This machine also has an automatic unloading device which is air-operated, depositing painted parts on a conveyor to go through the baking oven.

For further information, refer to MF No. 1001, when writing or telephoning Dumatic Devices, Inc., 22833 Dequindre, Hazel Park, Michigan.

For more data, circle 23 on colored card.

Clean Air for Spray Painting Stopped Expensive Rejects

Federal Enterprise installed a Wilkerson Mainliner on one enamel booth. Nine days later five more were ordered for the remaining enamel booths. Prior to installation, rejects averaged $100 per day. The Wilkerson Mainliner Filter eliminated all rejects due to water, oil or sludge in the atomizing air line. Because of the remarkable performance and actual reduction of cost (based on $100 a day savings less cost of installations), Purchasing and Maintenance Departments of all Federal Enterprise plants have been purchasing Wilkerson Moisture Separating Units for compressed air installations.

For more data, circle 24 on colored card.

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PEARLESCENT FINISHES

BAKE OR AIR DRY

For Your Product Made of Metal, Plastic, Wood or Glass, Write for sample, Specify application; choice of vehicle.

RONA LABORATORIES, INC.

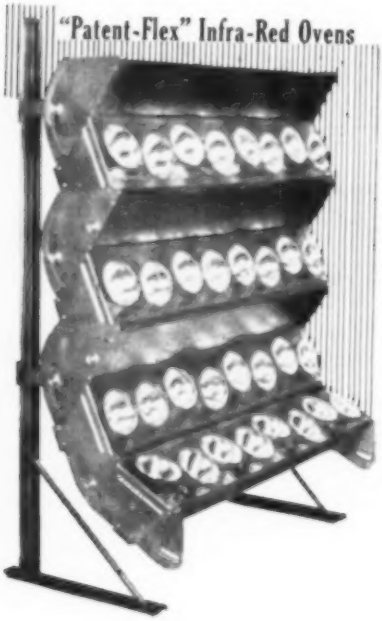
East 21st and East 22nd Sts., Bayonne 2, N. J.

Plants: Maine New Jersey Canada

For more data, circle 206 on colored card.

Patent-Flex High Heat Infrared Oven

A new type of infrared oven, for higher temperatures and efficiency, is announced by the Patent-Flex Mfg. Co., Div'n. of Wil-Son Inventions Corp., Cloverport, Ky. The manufacturer states that this new construction is suited to many applications not heretofore considered suitable to infrared.



The oven permits higher ambient air temperatures within. To accomplish this the radiation from each lamp row is projected upward at close to a 30° angle, which gives better heating of the lower part of materials being processed, where normally there is reduced heating due to cool air contacting the underside of the work.

Lamp sockets absorb less heat from the lamps; this permits 375 and 500-watt R-40 lamps, with hermetically sealed reflectors, to be used. Ventilation can be held to the minimum requirements necessary to meet safe operating conditions. Higher ambient air temperatures are obtained in the top of the oven, reducing the amount of infrared required. This makes it unnecessary to provide excessive ventilation to protect lamp equipment.

This oven is well suited to heat-degreasing and paint baking applications, where smoking-vapors would quickly cause loss of efficiency if open type metal reflectors were used.

For more data, circle 25 on colored card.

Reducer for Baking Enamels

A new blend of solvents for reducing synthetic baking enamels has been developed by Potter Paint Co., Inc., Cortland 21, N. Y., and Cambridge City 1, Indiana. It is being used successfully on a variety of materials which are applied both electrostatically and manually. It is different from the straight solvents such as xylol, toluol, etc. Up to 100% more of it can be used in relation to the enamel, and still maintain equal mileage and film thickness, according to the manufacturer.

The product, Hi-Sol Enamel Reducer, achieves this result because the lower viscosity resulting from increased reduction permits dropping air pressure and holding the spray gun closer to the work. More paint solids are deposited on the product, with less loss from overspray. In electrostatic applications the lower viscosity provides greater "wrap-around," placing more paint on the object to be painted, according to reports from customers using this method of painting. More information and samples are available from the company.

For more data, circle 26 on colored card.

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Use INDUSTRIAL FINISHING magazine's "Reader Service" return cards to obtain further information on products described and illustrated in the "Materials; Supplies; Equipment" section which precedes this page; also to receive further information on what manufacturers have to offer—literature, products, supplies, services, etc., as mentioned on the following pages.

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Industrial FINISHING

June, 1959, Issue

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High Metallic Enamel

A new alkyd baking enamel with high metallic content enables users to achieve a broad range of new color effects, with a degree of brightness, depth and color beauty.

It is being introduced under the trade name StaR-Mite by Rinshed-Mason Co., Detroit 10 Mich. Initial glow is said to have mirror-like brilliance, and Florida exposure tests have proved gloss retention to be high with good resistance to mildew in humid climates.

Although it is essentially an exterior automotive type enamel, it will prove useful on other metal products such as outboard motors, metal furniture and office equipment, household and commercial appliances, bicycles, etc.

For more data, circle 27 on colored card.

Pumps Paint From Drums to Point of Application

A new air-operated, reciprocating type stainless-steel pump has been developed by the Binks Mfg. Co., 3116 Carroll Ave., Chicago 12, Ill. This all new pump, called the "Pogo SS," is designed for the pumping and transferring of materials directly from the original 55-gallon containers, without costly spillage and waste, to the point of application.

The "Pogo SS" weighs less than 20-lbs. and is space-designed with the air motor and pump sections completely separated to remove the possibility of material entering the air motor or other critical parts.

The pump delivers from 3 to 5 gallons of material per minute and delivers on both up and down strokes, assuring the utmost in economy of operation and long maintenance-free life. Air motor piston cups are self-oiling and never require lubrication.

The "Pogo SS" is available in seven models, with various accessories to adapt it for use with a variety of materials. For an illustrated bulletin describing the new pump write to Binks Mfg. Co.

For more data, circle 28 on colored card.

Nylon Hose For Paint Spraying

A new type of paint spray hose known as Synflex Universal spray hose is announced. It is a flexible nylon formulation that is unaffected by solvents, paints, thinners, corrosion or industrial atmospheres. There is zero dimensional change through action of heat, and it is light weight.

Available in 1/8, 3/16, 1/4, 5/16 and 3/8-in. I.D. sizes, the hose is shipped in lengths up to 500-ft. A full line of brass fittings are also available.

Full details may be had from Synflex Products Division, Samuel Moore & Co., Mantua, Ohio.

For more data, circle 29 on colored card.

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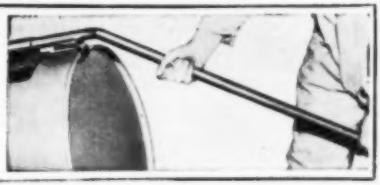
FOR A
PERFECT FINISH
Bulk or Bagged
IDEAL CHEMICAL
COMPANY
1499 Dean Drive,
South Euclid 21, Ohio

For more data, circle 239 on colored card.

MORSE DRUM UPENDER No. 32

Takes the strain and effort out of upending heavy drums. Has 40" handle offset 35° for top efficiency. Hefty 1¼" hook provides clearance for largest chime. 2½" x 8" toe plate spreads lifting pressure over large area to prevent drum damage. Order Several Today!

MORSE MFG. CO., INC. **$6.90** FOB
763 West Manlius St., E. Syracuse, N.Y.



For more data, circle 208 on colored card.

What Manufacturers Offer--Literature, Materials, Equipment, Supplies, Services

Please Mark Returned Cards Correctly

Some of the returned cards we receive are not filled in correctly—and we cannot read a few of the hand written names and addresses. Before returning a card, please check to see if it is marked correctly—and legibly, including your name and address. Thank you.—*Editor.*

A new 4-page Bulletin No. V-1224 describes and illustrates Norcross Viscosity Control Equipment for automatically adding solvent to correct for evaporation losses. Indicating-controlling or recording-controlling systems are available with or without high and low viscosity alarms.—Norcross Corp., 247 Newtonville Ave., Newton 58, Mass.

For more data, circle 32 on colored card.

Wood Grain Reproduction. New sturdy high quality machines for exacting grain reproduction—some practically automatic in operation—are offered by Schmutz Mfg. Co., 1600 W. Main St., Louisville 3, Kentucky.

For more data, circle 33 on colored card.

Angier Contact Cements for bonding desk, sink and counter-top laminations, honeycomb or sandwich panels, doors or curtain wall construction, are easy to apply and deposit a thinner more uniform film which results in greater mileage with no sacrifice in bond strength. Angier Adhesives are made for your particular needs. Interchemical Corp., Finishes Divn., 224 McWhorter St., Newark 5, N. J.

For more data, circle 34 on colored card.

Bowles Color Drift Control System offers a practical, economical and easy-to-use method of providing unchanging original color standards. When succeeding batches of coating materials are matched with Bowles color panels, each batch can easily and quickly be made to match the original color. Result is uniform colors for all product finishes, package and equipment applications. Get the money-saving facts by writing Bowles Color Drift Control System, Divn. of Bowles Printing Corp., 75 Third St., San Francisco 3, Calif.

For more data, circle 35 on colored card.

Mono-Bake Primers and recommended enamels, which combine in a single-baking system, to eliminate a costly second-handling and second-baking operation, and provide tougher, more coherent and durable films, are featured by the Barrett Varnish Co., 1532 S. 50th Court, Cicero 50, Ill. The primer is available in colors harmonizing with the finish coat if required, and can be sprayed or dipped.

For more data, circle 36 on colored card.

Spray Nozzles with Controlled Flow are available from Spraying Systems Co., 3240 Randolph St., Bellwood, Ill. Nozzles for washing, rinsing and coating are available. Catalog 24 gives complete information. Adjustable joints for fast positioning and re-positioning of nozzles relative to work are described in Bulletin 97.

For more data, circle 37 on colored card.

Parker Paint Test Panels eliminate variables from your test program. Automatic production, from press through flat polishing and processing, plus eight quality control checks, keep Parker panels dependably uniform. Reproducibility of test results is assured at all times with Parker panels. Both phosphate coated and bare steel panels are available. Untreated panels are carefully polished and cleaned, while treated panels can be furnished with any of the many Bonderites in use today. One side of all steel panels is flat polished and marked so that either the polished side or the unpolished side can be readily identified even after painting. Positive identification permits consistent use of either side, as desired. For reliable test results, you need Parker panels. Write today for bulletin and price list. Parker Rust Proof Co., 2176 E. Milwaukee, Detroit 11, Michigan.

For more data, circle 38 on colored card.

Mar-Proof Lacquer, made by The Schaefer Varnish Co., Inc., Louisville, Ky., is a performance-proven finish that cannot be easily marred or scratched. Tougher than ordinary lacquers, it meets the most critical requirements of current production. Made in either clear gloss rubbing or satin finish, it produces a splendid transparent coating of full depth on maple, walnut, gum, mahogany and other cabinet woods. Working samples furnished without obligation.

For more data, circle 39 on colored card.

Gasway Rollacoating saves 67% on paint and gets a more uniform finish with faster production. Full information on Rollacoating is available from Gasway Corp., 6459 N. Ravenswood Ave., Chicago 16, Ill.

For more data, circle 40 on colored card.

Feuzon Gray Metallic Finish covers metal perfectly with one coat. Metals containing dark spots can be covered with only one coat of Feuzon. Lowe Brothers engineers are trained to find ways to cut your painting costs, and will make a "flow-chart" analysis of your finishing system with no obligation. Contact The Lowe Brothers Co., Dayton 2, Ohio.

For more data, circle 41 on colored card.

Strainers for Straining lacquers, enamels, paints or varnishes are made of heavy paper stock with cloth inserts in coarse, medium, fine and extra fine mesh, 6-in. in diameter. Louis M. Gerson Co., Box 175A, Mattapan, Mass.

For more data, circle 42 on colored card.

Multicolor One-Coat Finish called "Spex" is featured by V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39, Ill. Provides a combination of two or more distinct contrast or harmonizing colors in one coat with standard spray equipment. For finishing wood, metal, plastic, brick, concrete and all types of composition board. Dries like lacquer. Available in a great number of attractive stock colors. Hides all surface irregularities. Color card available.

For more data, circle 43 on colored card.

Dupor No. 4 Respirator has double filters for easy breathing and greatest filtration of paint spray, dust and fumes. Soft rubber face mask gives an air tight fit. Patented Dupor valves bring in clean air and throw off breathed air. Weighs only 4-oz. H. S. Cover, P. O. Box 2508, South Bend 14, Indiana.

For more data, circle 44 on colored card.

NO BULBS OR SOCKETS TO BURN OUT

NO COLD OR HOT SPOTS with driQuik INFRA-RED INTERLOCKING OVEN SECTIONS

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WRITE TODAY FOR LITERATURE showing how you can speed up production and reduce costs by building or having us build driQuik ovens for your needs.

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DRY CLIME LAMP CORP. GREENSBURG, INDIANA

For more data, circle 209 on colored card.

Paint Overspray can be reprocessed in our plant to conform to its original specification in both physical and chemical properties. Paint waste overspray or paint sludge can be used again in regular production at considerable savings. Mixed color sludges can be converted to primers. Write for complete details. W. C. Richards Co., 3108 W. Vermont St., Blue Island, Illinois.

For more data, circle 45 on colored card.

"Profitwin Graining Machines" give a handsome two-color wood grain finish. Provide your products with the beauty that insures Sales Preference. Hamant Model DV-27 Profitwin Graining Machine produces two-color graining with a distinctive "worth-more" look. Complete information available from Hamant Tool Co., Inc., 502 Warren St, Dayton 9, Ohio.

For more data, circle 46 on colored card.

Drawer-Glide Waxes, color or colorless, penetrate deep into pores of the wood thereby giving the drawers dimensional stability, a moisture-proof coating and lubricating the surfaces for easy sliding. Drawer Glide Waxes also beautify the wood and give surfaces a smooth, waxy feel. The Prillaman Co., P. O. Box 1024, Martinsville, Virginia.

For more data, circle 47 on colored card.

"Remkleen WS" is clear fluid that degreases like magic. Requires no water, heat, steam or power and no expensive equipment. Simply rinse, spray or dip the work in Remkleen WS and it produces a chemically clean surface for immediate painting, coating or processing. 5-gallon can at drum price. R & E Martin, Dept. J-O, 2817-21 Helen St., Philadelphia 34.

For more data, circle 48 on colored card.

Drum Upender No. 32 for upending heavy drums, takes the strain and effort out of handling drums of paint, etc. Sizes and shape of upender spreads lifting pressure over large area to prevent drum damage. Morse Mfg. Co., Inc., 763 W. Manlius St., East Syracuse, N. Y.

For more data, circle 49 on colored card.

Weathering, Corrosion, exposure and sunlight tests, direct and under glass, provide quick predetermination of durability and permanency of a finish. Such tests can be made by South Florida Test Service, Inc., 4301 N. W. 7th St., Miami 34, Fla.

For more data, circle 50 on colored card.

Paint Testing Instruments and equipment take the guesswork out of paint testing. Write for descriptive catalog. Gardner Laboratory, Inc., P. O. Box 5728-FT, Bethesda 14, Md.

For more data, circle 51 on colored card.

Satin Finish Wooling Lacquers are ideal for use where a satin sheen finish with a smooth, silky feel is desired, without requiring a costly rubbing operation. Available in water white or in regular satin sheen wooling lacquer. Made by The Lawrence-McFadden Co., 7430 State Rd., Philadelphia 36, Penna.

For more data, circle 52 on colored card.

"Nacromer" Synthetic Pearl Essence adds unusual new life and brilliance to most coating materials. No extra finishing equipment is needed, just incorporate Nacromer into your coating material and apply by your usual method. Can be applied to wood, metal, plastic, paper, leather and many other materials. The Mearl Corp., 41 E. 42nd St., New York 17, N. Y.

For more data, circle 53 on colored card.

WOOD GRAINING MACHINES

6-inch to 60-inch printing widths.
Models for every direct-printing application.

KENT ROTARY EQUIPMENT COMPANY

1507 So. Downey Road — **Los Angeles 23, California**
Cable: KENTRO, Los Angeles — **Phone: ANgeles 1-5632**

For more data, circle 210 on colored card.

Functional Finishes!

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity . . .

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

TRY US!

THE VARNISH COMPANY

PRODUCTS 5206 HARVARD AVENUE · CLEVELAND, OHIO

For more data, circle 211 on colored card.

Lacquer No. 28 is a good fool-proof lacquer that works well on chrome, nickel, gold, silver, brass, etc. Is used extensively in the jewelry manufacturing industry. Agate Lacquer Mfg. Co., Inc., 11-13 43rd Road, Long Island City 1, New York.

For more data, circle 54 on colored card.

Conveyorized Finishing Systems are flexible, cut labor costs, use less floor space, increase production, give less fatigue for labor and are economical. Finishing systems can be engineered for wood and metal products. A Koch finishing engineer will make recommendations without obligation. George Koch Sons, Inc., Evansville 4, Indiana.

For more data, circle 55 on colored card.

Steinemann Coater applies all finishes uniformly to practically any size or shape of product. There is no waste; unused material is recovered by a recirculating system. For additional information write Wilco Machine Works, Inc., Municipal Airport, P. O. Box 3722 Z, Memphis 14, Tennessee.

For more data, circle 56 on colored card.

Automatic Viscosity Control for spraying, flow coating and dipping improves quality of painting and finishing by providing continuous uniformity of paint material. Norcross Corp., 247 Newtonville Ave., Newton 58, Mass.

For more data, circle 57 on colored card.

Non-Grain-Raising Stains, lacquers and everything for finishing fine furniture, cabinets, pianos, etc., plus styling and technical service—in Southeast U.S.A., are available from Snyder Brothers Co., P. O. Box 631, Toccoa, Georgia.

For more data, circle 58 on colored card.

"Electro-Spray" provides 50% paint saving over the former dip method in the finishing of dinette furniture at a Michigan plant. The Ransburg No. 2 Process Brochure illustrates a variety of automatic painting installations on a wide variety of products. If your production doesn't justify automatic painting, let Ransburg No. 2 Process electrostatic hand gun do the job. Brochure available from Ransburg Electro-Coating Corp., Box 23122, Indianapolis 23, Ind.

For more data, circle 59 on colored card.

New Idea Book on Spray Painting is available free of charge from Gray Co., Inc., 63 Graco Square, Minneapolis 13, Minn. Gives ideas, pictures, charts, diagrams, tables, facts and figures on production painting, multi-color painting and maintenance painting. Describes and illustrates Graco's new equipment.

For more data, circle 60 on colored card.

Wood Finishes, primers and sealers, as well as metal finishes of all types for all purposes, are supplied by J. Landau & Co., Inc., Carlstadt, N. J. Consult their special Research Staff for advice on Special Finishes or any finishing problem.

For more data, circle 61 on colored card.

#900 Ready Mixed Spray high gloss bake enamels in gold, brass, copper, bronze and aluminum are outstanding durable coatings. These coatings have a mirror-like gloss. The gloss is a much higher gloss than given by the old method of spraying a clear over a baked bronze-powder base color and baking again. O'Neal Paint Products, Inc., 15115 Chatfield Ave., Cleveland 7, Ohio, (P. O. Box 2694).

For more data, circle 62 on colored card.

Motor Painting is made easy with the automatic spraying machine by Binks Mfg. Co., 3116 Carroll Ave., Chicago 12, Ill. Spray guns paint top, side and bottom of each motor as it rotates in front of the gun. Automatic 2-color finishing can be set up. Whether you use materials that flow like water or have the body of heavy coatings, Binks will show you the method of application best suited for your needs.

For more data, circle 63 on colored card.

INCREASE PRODUCTION! CUT COSTS!
Your paint is factory fresh ready for use when mixed in a
MIRACLE PAINT MIXER
5 GAL. MODEL
¼ Pt. to 55 Gal. Mixers Available
Write to:
MIRACLE PAINT REJUVENATOR CO.
500 NORTH ROBERT STREET, ST. PAUL 1, MINNESOTA

For more data, circle 240 on colored card.

White Baking Enamels for water heaters is just one of the many industrial finishes developed by Gilman Paint & Varnish Co., Chattanooga, Tenn., who has been serving the Industrial Southeast since 1910. Tailor-made finishes can be developed for your particular product.

For more data, circle 64 on colored card.

"Alkaline Pickle" Detrex M-10, eliminates hydrogen embrittlement. It removes rust, heat scale and surface soils, particularly metallic soaps and corrosion products without removing any of the base metal. Does not cause dimensional changes in parts being cleaned. Can be used by either spray or immersion application. Detrex Chemical Industries, Inc., Box 501, Detroit 32, Mich.

For more data, circle 65 on colored card.

"Rel Var" is the modern synthetic coatings for prefinishing wall board and flooring. Is flame-resistant, cold check resistant, print resistant and chemical resistant. Is a pale permanent color. Complete details from Reliance Varnish Co., 4730 Crittenden Drive, Louisville 9, Ky.

For more data, circle 66 on colored card.

"Turcoat" Low Temp Phosphating gives a durable zinc phosphate coating in two minutes at 95° F. Makes an excellent paint base and a base for corrosion prevention. Full information on Turco's new low-temperature phosphating process and Turco's phosphating reference chart are available from Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

For more data, circle 67 on colored card.

Oakite Barrel-Finishing compounds are media-matched and offer extra barrel-finishing economies. Bulletin F-9339 tells you which is the right one to help you get the most from your barrel. Oakite Products, Inc., 20 Rector St., New York 6, New York.

For more data, circle 68 on colored card.

Bronzeless Golds come already mixed, cost less at the gun and give two or three times the mileage of bronze powders. Bee Bronzeless golds are non-tarnishing, give a harder finish and are not "touchy" to handle with your spray equipment. Adhere to treated steel or aluminum and thermoplastics. Bulletin B69 gives complete information. Bee Chemical Co., Logo Division, 12933 S. Stoney Island Ave., Chicago 33, Illinois.

For more data, circle 69 on colored card.

Burn-in Tools for making quick and skilful repairs to nicked, dented or scratched finishes. The Op-Al Electric & Mfg. Co., 3133 Martindale Ave., Indianapolis 5, Ind.

For more data, circle 70 on colored card.

Boats Completely Finished with Minnesota products have eye-appeal and long-lasting protection. Complete finishes for boats include mahogany wood filler and sealer, marine spar varnish and a colorful enamel that dries hard and firm with a surface sealed against water. Call the man from Minnesota to help you select top-quality finishes for your products. Minnesota Paints, Inc., 1101 Third St. South, Minneapolis 15, Minn.

For more data, circle 71 on colored card.

"Pearl Glo" Synthetic Pearl Pigment can be sprayed or dipped on any sealed surface of plastic, metal, wood, leather, paper, etc. Can also be incorporated into acrylics, polyester, vinyl, etc. Gives a pearl finish at low cost. Sample available. Specify application and choice of vehicle. Argenta Products Co., Garnerville, N. Y.

For more data, circle 72 on colored card.

Instant Stripper—For metal or wood finishes. A non-flammable, non-toxic stripper which removes almost instantly, most finishes—enamels, either lacquer or synthetic (baked or air-dried), paints, varnishes, etc. V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39.

For more data, circle 73 on colored card.

Natural and Synthetic Pearl finishes in air dry or bake coatings for a variety of products, are offered by Rona Laboratories, Inc., E. 21st & E. 22nd St., Bayonne, New Jersey. Apply to metal, plastic, wood or glass surfaces.

For more data, circle 74 on colored card.

"Liquid Envelope" saves time, labor and money. Is non-toxic, won't corrode metal walls or ventilating ducts. Is the original spray booth coating that can be peeled off quickly. Order 5-gallon test sample at drum-lot price. Distributors all over the U. S., or write Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, New Jersey.

For more data, circle 75 on colored card.

For more data, circle 212 on colored card.

"The Glidden Umbrella" of protection combines comprehensive technical service and custom-formulation of product finishes for all industry. Rain or shine Glidden finishes provide real umbrella protection against humidity, corrosion, chipping, fading, and all other enemies of product finishes. Get a complete analysis of all finishing problems in your plant by contacting the Glidden technician. The Glidden Co., Industrial Paint Divn., 900 Union Commerce Bldg., Cleveland 14, O.
For more data, circle 76 on colored card.

Pre-Cut Masks speed finishing. Protect surfaces from finishing to inspection. Hundreds of shapes and sizes of masks in stock or one can be made to fit your particular needs. For use in spraying, baking and tumbling. Free samples and bulletin 160-C available from W. H. Brady Co., 733 W. Glendale Ave., Milwaukee 9, Wisconsin.
For more data, circle 77 on colored card.

Conveyorized Ovens can be engineered for your particular drying and baking operation problems, by The Lanly Co., 2800 Euclid Ave., Cleveland 15, Ohio. Catalog No. 560 will get you better acquainted with the Lanly organization.
For more data, circle 78 on colored card.

Tack Rags for use prior to painting, to wipe off and hold dust and dirt particles too small to see, but which might leave a blemish on the final coat of paint or finish, are available from Ideal Chemical Co., 1499 Dean Drive, South Euclid 21, O.
For more data, circle 79 on colored card.

Graining Cylinders and Plates

WOOD GRAINS, Marbles, Cloth Patterns
NEW ETCHINGS—Your grain or ours
REPAIRS—Fast service on worn rolls
Reasonable prices — All sizes

QUALITY GRAVURE SERVICE
2016 N. Harlem Ave., Elmwood Pk., Ill.
Phone: GLadstone 6-6969

For more data, circle 241 on colored card.

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A service to aid industry in producing longer-lasting and better-looking products. Quick predetermination of durability and permanency by actual exposure test in South Florida. Write us today for full information.

SOUTH FLORIDA TEST SERVICE, INC.
EST. 1931
4301 N. W. 7th St. **Miami 44, Fla.**

For more data, circle 242 on colored card.

Baking Enamels by Adelphi Paint & Color Works, Inc., Ozone Park 17, N. Y., are formulated for your exact requirements. Adelphi's laboratory staff of expert paint chemists can formulate baking enamels that will cut your costs, and solve your finishing problems.
For more data, circle 80 on colored card.

Grain and/or Roller Coating; flat and curved surfaces, edges, etc., with or without steady belt feed. Small and large machines. Kent Rotary Equipment Co., 257 S. Spring St., Los Angeles 12, Calif.
For more data, circle 81 on colored card.

Color Styling reflects the quality of furniture. For new colors and finishes inquire at Lindeman's studio and laboratory in Galax, Virginia, or write Lindeman Wood Finish Co., Inc., Indianapolis 2, Ind.
For more data, circle 82 on colored card.

"driQuik" Interlocking Sections for building your own controlled-temperature infrared ovens. Have no sockets to burn out, has more intense far infrared energy with less power consumption. Impervious to vibration, shock, vapor and moisture. Dry Clime Lamp Corp., driQuik Division, Greensburg, Indiana.
For more data, circle 83 on colored card.

Restore Paint to its original consistency without opening the container, whether in ¼-pint cans or in 55-gallon drums. Time required is only 2-minutes per gallon. Full information from Miracle Paint Rejuvenator Co., 128 E. 10th St., St. Paul.
For more data, circle 84 on colored card.

Uni-Vac Vacuum Metalizing gives that brilliant new look to your product. Gives a good undercoating or a durable topcoating on metal, plastic, cloth, glass or paper. Can be sprayed or dipped. Has good flexibility, maximum hardness and toughness. Has good adhesion, high-build, and resistance to abrasion and moisture. Send for free, liberal sample. United Lacquer Mfg. Corp., Linden, N. J.
For more data, circle 85 on colored card.

Tack Cloth for Wiping Dust. It's available in different meshes, in envelopes, rolls or bulk. Lint free, wax free; no danger of spontaneous combustion. Bond Chemical Products Co., 2641 N. Clybourn Ave., Chicago 14, Ill.
For more data, circle 86 on colored card.

"Magic Tack Rags" are scientifically made to create the "tack" that picks up dirt, sand, and foreign matter on the surface to be finished. Will not dry hard—but retains "tack" indefinitely. Wm. Juergens Mfg. Co., P. O. Box 143, Station C, Toledo, Ohio.

For more data, circle 87 on colored card.

Cellulosic, Vinyloid, acrylic and alkyd coatings for a wide range of specialized industrial applications are among the functional finishes manufactured by Varnish Products Co., 5206 Harvard Ave., Cleveland 5, Ohio, to help you accomplish some specific task, something beyond mere ornamental appearance or average longevity. Write for detailed information.

For more data, circle 88 on colored card.

Solar Testing of paint to evaluate lustre, chalking, color, fading, spotting and general film durability, is now offered by Solar Testing Service at Ft. Lauderdale, Florida. We especially invite inquiries from Foreign Auto Manufacturers.

For more data, circle 89 on colored card.

Perfex Satin Finishes, the original "flat" made by a new and different process, without the use of stearates or other flattening agents, have cut the dust-free time, increased print resistance, increased body and build, improved clarity and color . . . which combine to produce a rubbed finish effect appearance and a pleasant waxed effect feel. Available in a full range of sheens to produce the exact rubbed effect and waxed feel desired. Perfection Paint & Color Co., Indianapolis 2, Indiana.

For more data, circle 90 on colored card.

Heavy-Duty Roller Coaters by The Black Brothers Co., Inc., Mendota 12, Ill., apply paints, lacquers, sealers, sizes, stains, waxes, filiers, base coats, etc., to wood, metal, plywood, composition board, hardwood, plastics, etc. Have speed, accuracy, cleanliness and economy. Descriptive literature available.

For more data, circle 91 on colored card.

Bronze Powders can be applied by spraying, dipping or flow coating, and give a plated effect. 33 "Cres-Lite" colors are in stock, or colors can be created to suit your needs. Color card showing our "in-stock" bronze powders is free on request. Crescent Bronze Powder Co., 118 W. Illinois St., Chicago 10, Illinois.

For more data, circle 92 on colored card.

Roller Coaters—Bench type and heavy floor models for applying lacquer, varnish, paint, oil, etc., to metal, plywood or hardboard. Grooved rolls available for spreading adhesives. L. R. Wallace & Co., 172 N. Vernon Ave., Pasadena, Calif.

For more data, circle 93 on colored card.

Airless Spray Coating minimizes overspray problems, reduces health and fire-hazards, cuts maintenance and clean-up costs, saves paint, time and labor and reduces auxiliary painting equipment requirements. Above these advantages a better finished product is the final result. Write Nordson Corp., Amherst, Ohio, for the Airless Spray Painting brochure.

For more data, circle 94 on colored card.

Industrial Finishes, specially formulated for your production line and products, give your products a salable appearance. For a perfect protective and decorative finish for your particular purpose, consult the Rockford Varnish Co., Rockford, Illinois.

For more data, circle 95 on colored card.

Graining Plates of any pattern, size or shape (wood grain, leather, marble, fabric, etc.) for hand or machine graining. American Richwood Products Co., 104 E. Mason St., Milwaukee 2, Wis.

For more data, circle 96 on colored card.

"MAGIC" TACK RAGS

IMPROVE YOUR FINISH 100% ! !

"MAGIC" TACK RAGS remove specks, lint, and sand particles on the surface of metal, wood or material to be finished. "MAGIC" TACK RAGS remain tacky indefinitely, and are spontaneous combustion proof. Sample upon request.

WM. JUERGENS Mfg. Co.,

P. O. Box 143, Station C, Toledo 7, Ohio

For more data, circle 243 on colored card.

FINISHES CONSULTANT

It only appears impossible until it has been done.

E. A. ZAHN

4304 Alton Road, Louisville 7, Ky.

Telephone, TWinbrook 5-4349

For more data, circle 244 on colored card.

Paint Heaters by The DeVilbiss Co., Toledo 1, Ohio, can reduce your painting costs by 30%. Thinner and paint consumption are reduced, as well as a reduction in booth maintenance. Heated paint leaves the gun evenly and applies a fine film build and superior gloss.

For more data, circle 97 on colored card.

"Mogul M-55" Liquid Treatment for water wash paint spray booths is safe to use, and will not harm personnel. It provides an excellent paint blanket and protects equipment. Keeps your water circulation system at top operating efficiency. A 60-day trial offer will prove Mogul-55 results in your own operations. The North American Mogul Products Co., Standard Bldg., Cleveland 13, Ohio.

For more data, circle 98 on colored card.

Pyroxcote No. 26-105G is a lasting, brilliant, brass effect lacquer. Is a durable and tough dipping lacquer that simulates brass plating. Will not fade in sunlight. Has an unlimited pot life and dries in only 10 minutes. Pyroxylin Products, Inc., 4851 S. St. Louis Ave., Chicago 32.

For more data, circle 99 on colored card.

Ultrasonic Tanks, degreasers and washers are available for cleaning, pickling, plating. Ultrasonic degreasers save solvent, labor and reduce rejects prior to plating. Complete line of processing equipment available. Ramco Equipment Corp., 821 Edgewater Road, New York 59.

For more data, circle 100 on colored card.

SOLAR TESTING SERVICE

Will test paints, plastics, rubber, pigments, textiles or anything, with full use of sub-tropical environments. Monthly reports covering exposure results evaluating lustre, chalk, color, fading, spotting and general film durability. Inquiries invited.

SOLAR TESTING SERVICE

4165 S.W. 11th Terrace Ft. Lauderdale, Fla.

For more data, circle 245 on colored card.

PAINT STRAINERS

FOR STRAINING LACQUERS ENAMELS, PAINTS OR VARNISHES.

Made of heavy paper stock with cloth inserts in coarse, medium, fine or extra fine mesh. 4" in diameter.

LOUIS M. GERSON CO.

BOX 175A CUnningham 6-1463 MATTAPAN, MASS.

For more data, circle 246 on colored card.

Solvents and Chemicals for thinning materials, for cleaning and other special requirements, are available in drums or tank cars from any one or more of the companies in the group, strategically located. The Solvents & Chemicals Group, 2540 W. Flournoy St., Chicago 12.

For more data, circle 101 on colored card.

Dulux Enamels can be applied to your product by flow coating, roller coating, dipping, spraying, or electrostatic method. Have good resistance to high humidity, ultraviolet radiation and ordinary wear. Improve your product and production with a DuPont finish. E. I. duPont deNemours & Co., Inc., Finishes Divn., Wilmington 98, Delaware.

For more data, circle 102 on colored card.

Metalprep Rust Remover thoroughly rids metal of rust and assures greater paint durability. Other products for metal conditioning, phosphatizing and preparing metal for paint are Lyfanite A, Phosteem, Prepncote, Lyfanite Z, Galvaprep, Alumiprep and Emulsoprep. General Brochure 57-147 gives complete information on metal conditioning, phosphatizing and preparing metal for paint. Write Neilson Chemical Co., 2306 Gainsboro, Detroit 20, Michigan.

For more data, circle 103 on colored card.

Union Pre-Finish Line enables production to go up and labor costs to go down. Typical installation includes flat stock being placed on brush roll machine to clean both surfaces, roller coater to apply lacquer or other coating, stock passing along on conveyor, and flap wheel sander which lightly sands top surface. Another roller applies lacquer sealer, stock is dried in infrared drying oven and moves to rack for cooling and onto waiting skid. Get full details about this time-saving, labor-saving system. Union Tool Corp., Warsaw, Indiana.

For more data, circle 104 on colored card.

"Space-Cote" and "Clad/Lytic" are two new finishes by Tenax Finishing Products Co., Newark 5, N. J. Space-Cote is an engineered finish formulated for use on missiles, space vehicles and tracking equipment. Clad/Lytic is a conversion coating that air dries or low bakes at 110° F. with all of the properties of a fine high bake enamel. In primers it has good corrosion resistance.

For more data, circle 105 on colored card.

"Radiant Heat Applications Unlimited" is a free book offered by The Fostoria Pressed Steel Corp., Fostoria, Ohio. Tells how you can profit through the use of infrared heat, fabricating flexibility and their nationwide service. Send for a copy, stating your application requirements.

For more data, circle 106 on colored card.

Push-Button Touch-Up. With the Sprayon Self-Spraying Touch-Up Tool, any employee can quickly repair the paint damage where it happens—on the production line, inspection, shipping, warehouse, etc. Free touch-up folder available. Sprayon Products, Inc., 2071 East 65th Street, Cleveland 3, Ohio.

For more data, circle 107 on colored card.

"SQ Duracote" the weather-resistant finish will give 50% more resistance to film failure and loss of gloss than normal weather-resistant finishes. Your present finish can be duplicated in SQ Duracote, both in color and method of application. Contact Tousey Varnish Co., 520 W. 25th St., Chicago 16, Ill.

For more data, circle 108 on colored card.

Complete Paint Finishing Systems, such as flow coating, dip coating or automatic spraying, metal cleaning and phosphatizing equipment, baking ovens, air replacement systems and conveyors can be engineered and installed by The Spra-Con Co., 3600 Elston Ave., Chicago 18, Ill. The Spra-Con catalog illustrates and describes many installations of complete paint finishing systems—small, medium and large.

For more data, circle 109 on colored card.

Furniture Finishes by Grand Rapids Varnish Corp., Grand Rapids 2, Mich., add beauty and saleability to your product. Three distinctive finishes were developed for a line of Teak Hai furniture, each one suited to enhance the Eastern mood and style.

For more data, circle 110 on colored card.

"Hydrastat Pump" cuts paint costs up to 40%. This portable spray unit puts paint only where you want it, eliminates overspray and bounceback, cuts exhaust requirements, eliminates fire hazards and makes cleanup easier. Illustrated literature available from Stewart-Warner Corp., Dept. AE-69, 1850 Diversey Parkway, Chicago 14, Ill.

For more data, circle 111 on colored card.

Lea Synstrip is a fast-working, non-corroding liquid stripper for removing enamel, lacquer and synthetic coatings. Will not attack aluminum, zinc or any other base metal or alloy. Does not dissolve the coating, but breaks the bond. Lea Coldstrip can be used at room temperature, with minimum ventilation and can be filtered for continued use. The Lea Mfg. Co., 16 Cherry Ave., Waterbury 20, Conn.

For more data, circle 112 on colored card.

Electro Cold Stripper will strip vinyls, alkyds, japans, hammers, etc. in minutes and often in seconds. Is non-flammable, no heat or current required. Data and testing sample available without charge. Allied Finishing Specialties Co., 2641 W. Grand Ave., Chicago 12, Ill.

For more data, circle 113 on colored card.

"Duracron" Thermo-Setting Acrylic Enamel combines in a single finish, superior adhesion, color and gloss retention, durability, flexibility and resistance to chemicals, grease, humidity, moisture, salt spray, stains and impact. Can be sprayed, dipped or roller coater. Excellent as a one-coat enamel or as a topcoat with various primers. Pittsburgh Plate Glass Co., Industrial Finishes Divn., 1 Gateway Center, Pittsburgh 22, Penna.

For more data, circle 114 on colored card.

FINISHING CONSULTING SERVICE

Paul R. Dukes - Registered - Professional Engineer, 24 years handling production and experimental finishing problems—Layout, Testing, Electrostatic Application, Plastic, Flock, Enamels.

2284 Albion Street Toledo 6, Ohio
Phone Cherry 8-3391

For more data, circle 247 on colored card.

FINISHING OVENS

THE LANLY CO.

2800 EUCLID AVE. • CLEVELAND 15, O.

WRITE FOR INFORMATION & LITERATURE

For more data, circle 248 on colored card.

Hi-Sol Enamel Reducer offers such merits as less "orange peel," high gloss and excellent hiding, superior flow, resistance to sagging, quick initial set, smooth finish. Potter Paint Co., Cortland 1, N. Y., and Cambridge City 1, Indiana.

For more data, circle 115 on colored card.

Zinc Chromate Primer, in seven different specifications, can be shipped the same day as ordered. Randolph gives fast service and prompt delivery of uniform industrial finishing products. Randolph Products Co., Carlstadt, N. J.

For more data, circle 116 on colored card.

Meter Shows Solution Strength In Spray Washers and Tanks

Now available is the Wyandotte Kleener Meter, a new concentrated control meter for chemical compounds in spray washers, spray booths, phosphate installations and tank systems.

Meter saves titrating solutions.

It is a heavy duty, electrically operated instrument with a stainless steel and porcelain probe which goes through the tank wall and into the solution. The dial indicates solution strength at all times and eliminates the need for titrating solutions.

For detailed information, write J. B. Ford Division, Wyandotte Chemical Corp., Wyandotte, Mich.

For more dat,a circle 30 on colored card.

Better trained retail sales people and more original research are crying needs of the paint industry.

New Book On Ethylene Amines

A new book on ethylene amines designed for research chemists and technical personnel is announced by The Dow Chemical Co.

Entitled Ethylene Amines, the 65-page publication provides comprehensive coverage of ethylene amine chemistry. The contents of the book include properties, reactions, uses, first aid techniques, handling and storage, property graphs and a bibliography covering patent and use sources.

Ethylene amines and their reaction products find many applications in the textile industry as detergents, surface-active, chelating and finishing agents.

In the field of coatings, such as paints and varnishes, these chemicals are used as thixotropic agents. In other fields, they are used in the manufacture of resins, plastic films, adhesives, and as a corrosion inhibitor in steam systems, etc.

Copies of the book are available from Organic Chemical Intermediates Sales, The Dow Chemical Co., Midland, Mich.

For more data, circle 117 on colored card.

P. P. G. Co. Moves Calhoun; Promotes Kelley

Appointment of William B. Calhoun, Jr., (right) as manager of automotive sales for Pittsburgh Plate Glass Company's Ditzler Color Division in Detroit has been announced.

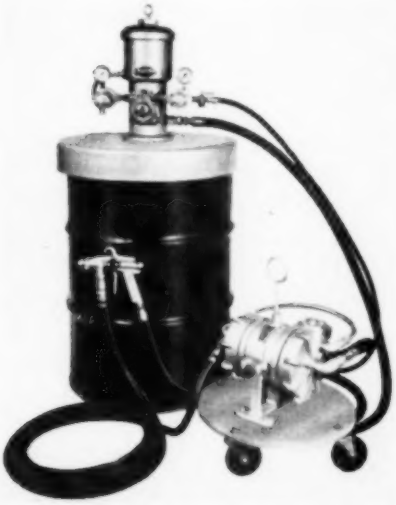
Mr. Calhoun who has served as manager of industrial sales in the company's Houston, Texas paint factory since 1953, will be replaced by J. T. Kelly (left) as manager of industrial sales for the Houston, Texas Paint Division.

Prior to his appointment, Mr. Kelley served since 1949 as industrial sales representative for the Houston Paint Division in the New Orleans and Dallas territories.

Equipment For Applying Asphalt Type Materials

The Spee-Flo Co., has developed a new Powermastic package for the heated application of coal tar and asphaltum type materials. The unit is specially designed for heavy duty work at high pressure. It includes the Atlas pump, Powermastic heater and a heavy materials gun.

Hot spray application of mastic produces a good film build with less shrinkage and fast drying time. When the heated material leaves the gun, most of the solvents evaporate immediately. This means a higher solids film deposit per spraying pass, and drying time is faster. Sags, shrinkage and pinholing are no longer a problem.



Package unit includes pump, heater and gun

The hot spray method of application is said to effect a savings of 40% in time and material. Viscosity remains constant and cold weather has little effect on the spraying application.

For more data, circle 31 on colored card.

CLASSIFIED ADVERTISING

The rate on ads appearing in this department is $1.00 per line of 6-pt. light face type, per insertion. Minimum charge, $5.00. Ads set in 8-pt. extra bold face type cost $2.00 per line, per insertion.

OPPORTUNITY, TECHNICAL DIRECTOR

Medium size successful manufacturer of industrial coatings has position of Technical Director open for graduate chemist, 35-45 years old, with ten to 15 years experience in formulation of industrial product finishes. This is an unusual opportunity with attractive salary plus bonus and fringe benefits. In reply give complete details of education and industrial paint experience. Replies will be handled with confidence. Address to T. M. Stokes, President, ROBERTSON CO., 1301 West Kentucky St., Louisville 10, Ky.

INDUSTRIAL FINISHES SALESMAN.

Old established firm specializing in product finishes, has opening for experienced salesman in and around Chicago. Our plant and laboratory staff are among industry's finest. We need man with proven sales record, capable of executive responsibility after becoming established with us. We expect to pay well for this ability. If you qualify, are between 28 and 45, and interested in a real opportunity, send complete resume including financial requirements. Your reply will be held in strict confidence. Address IF-680, care Industrial Finishing.

FREE TECHNICAL BULLETIN

Now available on new development in operation and maintenance of water-wash paint spray booths. Address IF-645, care Industrial Finishing.

FOREMAN FINISHER WANTED.

Outstanding opportunity. Aluminum siding. One of the country's largest producers now further expanding production five-fold with new wide coater line in addition to increasing capacity of present line. Work closely with widely renowned American-Marietta technicians. Excellent working conditions. Most desirable living conditions in or near famous Oconomowoc, Wisconsin. All replies confidential. Please give details of your work record and earnings. Write Personnel Manager, AMERICAN-MARIETTA CO., 101 E. Ontario, Chicago 11, Illinois.

CHEMIST WANTED.

We have an opening for a graduate chemist who has had enough practical experience to be top man in evaluating, formulating and making quality top coats primarily on various wood finishes. Our home office and laboratory located near New York and applicant would need to be willing to move east if presently located elsewhere. Please give full particulars in first letter which will be held in confidence. Our own people know of this ad. Address IF-664, care Industrial Finishing.

WANTED.

Dirty solvents and thinners. Please send samples. Have clean reclaimed solvents for sale. Modern efficient solvent recovery service. Will process for customer, material at fraction of the original cost. ACME RECLAIMING, Inc., 1915 20th Ave., Rockford, Illinois.

WANTED.

Industrial Finishes Chemist or Chemical Engineer with experience in the development and application of roller coating formulations, including both narrow and wide strip. Must be capable of directing independent and original work utilizing a wide assortment of types of pigments and resins. This is an exceptional opportunity and offers an attractive salary. Air conditioned laboratory. For further particulars on a confidential basis, contact C. M. Jackson, JONES-DABNEY CO., Box 328, Louisville 1, Ky.

STAIN AND FILLER MAN WANTED.

We desire a man with practical experience with all types of wood finishes and finishing operations. Must be able to formulate and match colors and prepare panels for display work. Opportunity to work with manufacturer of Dutch Boy paints. Salary open. Many fringe benefits. NATIONAL LEAD CO., Personnel Manager, 2545 Aramingo Ave., Philadelphia 25, Penna.

ATTENTION: ALL FINISH SALESMEN.

If your present line does not include varnish, you are missing a bet. PERFEX VARNISHES are unexecelled (yes, unequalled) and are well known by volume finish users. Look at our display advertisement on page 19 of this magazine. If you are interested in the possibility of taking on PERFEX VARNISH in addition to your present line, write us. All replies will be held in strict confidence. PERFECTION PAINT & COLOR CO.

SALESMAN—INDUSTRIAL FINISHES.

If you are bogged down in your present position—

If you are accustomed to earnings well up in five figures (or if you feel you have that potential)—

If you see no real future with your present firm—

If you are aggressive—

If you want real security—

YOU'RE FOR US AND WE'RE FOR YOU!

Write or wire today. We're in the Newark area, well established and growing every day. Replies confidential. Address IF-652, care Industrial Finishing.

HELP WANTED.

Wood graining machine operator and maintenance man to run new graining department. Very good opportunity for the right man. Must be willing to relocate. Our personnel know of this ad. All replies will be held in strict confidence. Address IF-679, care Industrial Finishing.

FURNITURE SERVICE MAN WANTED

By a manufacturer of a complete line of furniture finishes. Must have some laboratory experience. His time will be about equally divided between the field and laboratory. Salary commensurate with ability. All replies will be kept strictly confidential. Please address GILMAN PAINT AND VARNISH CO., P. O. Box 1257, Chattanooga 1, Tenn.

SERVICE MAN.

We have an opening for a first-class man who is capable of making up and demonstarting finishes on wood furniture. One who has had practical experience in a furniture factory, and has the personality and desire to get into sales work. Present opening is in North Carolina, but may move to another territory later if mutually desired. Replies will be kept confidential and our own people know of this ad. Please give full particulars in letter as to age, family status, experience and compensation you feel you can earn with a progressive manufacturer of industrial finishes. Address IF-663, care Industrial Finishing.

HELP WANTED SALES MANAGER.

Unusual opportunity to head sales of growing industrial coatings manufacturer. Prefer formulator who has proven sales ability. Ideal Connecticut residential area, excellent plant facilities, strong financial position with highest trade ethics. All replies confidential. Send resume and letter to I-SIS CHEMICALS, Inc., Springdale, Conn.

DIRTY THINNERS AND SOLVENTS WANTED.

Send samples and letter giving approximate contents. GET CASH FOR SCRAP. THE JOHANN COMPANY, 13900 Grant St., Dolton, Illinois. Phone Dolton 4850.

HARDWOOD FINISHES CHEMIST AND PRODUCTION MAN

Wanted by leading wood finishing house in north New Jersey, to supervise formulations and production of wood finishes, fillers, stains, color-matching and lacquers. Salary will match ability. Outline background and experience. Replies confidential. Address IF-678, care Industrial Finishing.

ATTENTION: ALL PAINT SALESMEN.

If your Industrial or Trade Sales Line does not include Multi-Color paints, contact us for complete information about this beautiful, rugged product, which is in increasing demand everywhere for architectural and product use.

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